From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Hi!
Date: September 29, 2006 at 11:45 PM
To: jashburn@knology.net

Dear Jim,

I just read the attached Science paper. Obviously there was a story in UAH that I did not know.

Can you tell me exactly what happened in Alabama? Specifically, had Mau-Kuen ever mentioned Yttrium-substitution to you before your calculation? If not, then how did you two come up with the idea of Y-substitution and did Mau-Kuen instruct you to synthesize the compound?

There is another story that has been buried for almost twenty years in UH. I would like to have a chance to relate this story to you so that we can compare notes. I am working on gathering all the facts so that I can contact Robert Pool to see if he is interested in writing a follow up article on this historical event. I hope you can join me to set the record straight.

We can communicate through email or you can call me at 713-5502845.

Sincerely

Pei H. Hor

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi!
Date: September 30, 2006 at 9:39 AM
To: Peiherng Hor peiherng@sbcglobal.net

Peiherng,

The true story involves many names you've never heard -- student friends of mine -- who encouraged me to try many different things -- coprecipitation, ball milling, and finally various chemical substitutions.

Early on, M. K. was supportive, but by the middle of January ('87), his support was fading.

These friends included Daniel Shultz (who at the time had a BS in Ceramic Engineering from Georgia Tech), Tony Xidis (who at the time had his BS in chemistry from Wayne State), and Jones Hamilton (BS in physics from UAH), among others. They were all participants and witnesses to how I came about deriving Y1.2Ba0.8CuO4.

My obsession was with reducing or eliminating the disorder associated with the La and Sr in La1.8Sr0.2CuO4. This prompted the ball-milling and coprecipitation efforts. Finally, I ran across an interesting statement in a book on perovskites by Francis Galasso. It talked about how increasing the size difference between the ions in a common site could cause them to order. Also, the ratio needed to be closer to 1:1. For fear of disrupting the K2NiF4 structure, I also wanted to preserve the average ionic volume. Using the ionic radii from the solid state physics text I was using at the time, I finally came up with the Y1.2Ba0.8CuO4 formula. I can show you the details some other time if you are interested.

There's another interesting side story on a La-Hg-Cu-O sample that I won't go into here that also played a key role in all this.

Anyway, M. K. wasn't very convinced, and on the day the first Y1.2Ba0.8CuO4 sample was made, he insisted we make a Y1.8Sr0.2CuO4 sample. Of course, you know what happened.

I have kept lots of material from those days. I even recently recovered all of the data from my old floppies, including data we never processed or printed. I've been able to reconstruct many, many details from the six weeks leading up to the discovery, and I have written up a lot of notes on it.

However, it is so painful revisiting the whole thing, that I often go months or years between working on all this. My hope, like yours, is to have something for the 20th anniversary.

Regrettably, the true story (at least of the formulation of Y1.2Ba0.8CuO4) does not involve the Houston team very much. If I could go back in time, knowing what I know now, I would throw the samples away before even testing them, and wait around for some other poor grad student to discover it.

It may sound like I'm bitter about the whole episode, but I am not. It was just not worth the pain I endured in the years that followed.

Of course, I subsequently left academia and have worked in the private sector since. The work is not particularly rewarding or challenging, but my priority since that time has been to work with people I can trust. I have been able to do this for years.

By the way, I was one of the better students to ever go through UAH. I had been a National Merit Scholar, valedictorian of my high school graduating class of 350 students, had various awards from contests in math, science, writing, etc. It was easy to feel like I was called to do research. But these days, my focus is on my family -- my wife of 15 years and five children. Research was my first love. My love now is for my family.

One last thing -- Back in 1987 at a MRS meeting, Rustum Roy of Penn State did a videotape interview of Paul and M. K. He and his colleague asked some very probing questions, and it was at that time that Dr. Roy concluded that there was a lot more to the story than they were telling him. The originals of those videotapes later disappeared from the MRS offices. By chance do you or UH have a copy of them? If so, please let me know.

Let me know a bit more about your plans. What will you do if the truth you uncover is not very flattering of Paul or UH?

Lastly, have you read any of Chu's accounts from after ca. 1995? If not, check out this one (http://www.knology.net/~jashburn/superconductivity/Chu_Paper/). Aside from Chu's tenuous claim to directing UAH to try Yttrium (which is hardly sufficient), even he makes it clear that his contributions were not as significant as earlier stories made them out to be.

Best wishes to you and your family.

Sincerely,

Jim

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Hi!
Date: September 30, 2006 at 6:31 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

The Houston story is pretty much in the attached affidavit that I submitted to UH in March. There is another story behind this and I will tell you later

I had always considered our research to be a team work. Therefore, right from the beginning through our phone conversation, M. K. had convinced me that he went back and did the Y-substitution as I suggested. You can image how frustrated I felt when I found out it was Yttrium that I had already started working on.

Chu filed the patent application without my knowledge. I was completely kept in the dark by Chu & Meng as far as patent application and interference are concerned.

Read my affidavit so you can have a idea about what happened in Houston. This affidavit was putted together in a hurry and it was the best I could do then. I was totally exhausted after I submitted it. I have learned much more since then and it seems to be even more colorful than I originally thought. I am not a good record keeper and many records were lost. It was pure luck that I dug out some documents to substantiate my words. Chu had never really directed research in Houston either, especially after we reproduced IBM results in Nov. 1986.All along, he had a full time job at NSF in Washington D.C. and he was running around all over to give talks after Nov. 1986. He called back to share rumors and asked for more new data to present.

I am not aware of Rustum Roy's videotape interview of Paul and M. K. I will check to see if I can locate one. How about asking Rustum Roy himself?

Ever since Paul Chu accused M.K. of breaking away from our team work and even fighting against us, I felt so hurt, I refused to see reporters and to read anything related to YBCO discovery. It was not until this year I started reading all this documents again and my findings were shocking, to say the least.

I will proceed as I have told you: put everything together and go talk to Robert Pool. He did a decent but incomplete job. I am going to ask him to complete it. We can do ittogether.

For a start I suggest that you write down, in detail, something similar to my affidavit to recount what happened in Alabama with all the supporting documents. I will expand on my affidavit too. We can discuss and compare our writings. They will serve as a starting point and the basis for Robert Pool to investigate.

I am challenging Chu's inventorship now. After more than six months of fruitless effort I am in the process of suing Paul Chu. Since there is litigations involved I would like to ask for your collaboration to coordinate our move so that it will not conflict with my attorney's legal advice. I will have to forward our email communications to him. If you have an attorney too or if you have any problem, please let me know.

Best wishes to you and your family too.

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi!
Date: September 30, 2006 at 10:44 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Ashburn Jim ashburn@westar.com

Peiherng,

I don't mean to be unkind, but if everyone who ever suggested yttrium prior to the discovery were included as inventors, the list would indeed be a long one. I suppose your claim is at least valid as Chu's, but the fact is that the Houston team tried straight substitutions of Y for La in La1.8Sr0.2CuO4 and La1.8Ba0.2CuO4 in mid January (or at least these approximate compositions) and the results were insulators. You may check your records. If you don't have them, I can provide copies of them. After these failures, your team abandoned yttrium. Perhaps you intended to revisit it. Perhaps you did not. It is irrelevant to what happened later.

Consider the following from D. R. Clarke, “The Development of High-Tc Ceramic Superconductors: An Introduction,” Advanced Ceramic Materials **2**(3B) Special Supplementary Issue, 273ff (July 1987), an American Ceramic Society Publication:

> In retrospect it appears that a number of the groups were making a straightforward substitution of Y for La under the assumption that the compound Y2CuO4 analogous to La2CuO4 exists.

I would guess that between just the Houston and Huntsville teams, at least a half dozen people independently identified Yttrium as something worth trying. In any case, it didn't exactly take a "rocket scientist" to put it at or near the top of a short list of promising candidate elements -- actually, the only prerequisite is high school chemistry. I even had Bismuth and Thallium on my short list, but I don't take credit for the superconductors based upon those. So, for what it is worth, I would never dispute your claim that you mentioned Yttrium to Wu. However, neither can I disprove that you mentioned the other 91 naturally occurring elements as well.

The fact is, many groups in addition to Houston (the list is not a short one, as you probably well know) thought of Yttrium prior to 29 January 1987 but failed to "reduce their invention to practice." If "thinking of yttrium" was not enough to achieve "reduction to practice," then it seems illogical to suggest that "thinking of yttrium" qualifies as "conception of the invention."

By mid January 1987, Wu had grown weary of trying new materials. I should have heeded his advice -- in hindsight, it was very wise counsel. Instead, I foolishly continued to formulate, produce, and test more materials. I can show in PAINFUL detail how they led up to the Y1.2Ba0.8CuO4 composition. Up until Y1.2Ba0.8CuO4, I had never substituted more than 15% of the rare earth with the alkali earth. But in this sample, I specifically chose Barium (because its large size would hopefully help compensate for Yttrium) and increased the substitution by a factor of 3-4 over what I had typically done. I can offer AGONIZING details (already documented and published) on how this composition was achieved and relate it in EXCRUCIATING detail to all of the other compositions I formulated during that time.

A fellow student by the name of Daniel Shultz (a ceramic engineer, by training) specifically recalls me asking him where I might find some yttrium oxide. He suggested I try a ceramic engineer. I knew of one out at NASA, one Ed Ethridge. Since Wu was making trips to the same lab to do his Hall Effect measurements, I asked HIM to get some yttrium oxide, which he did on his second or third trip out. At least three people were witness to my two (at least) requests. This fact would be hard to reconcile with you claiming to direct Wu to try Yttrium, would it not?

Because Daniel had told me about ceramists' obsession with keeping their oxides pure, I was hesitant to use it even after I got it -- it was an unopened container. It sat in the lab for over a week until another sample of my formulation showed some promise. This, along with the encouragement of another fellow student by the name of Jones Hamilton (who also "thought of yttrium" in much the same way as you) encouraged me to finally break the seal on the container and make the Y1.2Ba0.8CuO4 composition I had formulated several days prior. Wu wasn't so confident and asked that I make Y1.8Sr0.2CuO4 (just like one of the Houston samples that failed). So, on 28 January 1987, I made Wu's sample and I asked C. J. Torng (a fact he recalls) to make mine. You pretty much know the rest of the story.

The bottom line is that the discovery was the unfortunate result of a bunch of kids playing in a laboratory -- a story no university would ever want to tell. It was no work of genius. It was no great achievement. I say this not out of humility, real or feigned. I say it only because it is a fact.

Here's another one. Explain why we only heated our first Y1.2Ba0.8CuO4 sample to 1000 C. This is among the funniest stories of all. Even some non-geeks can appreciate it. We didn't have a furnace that would go any hotter. Otherwise, I would have toasted it around 1150 C and we would likely have never discovered anything. So you can add "blind luck" to "kids playing." Not exactly science as it's portrayed in the movies, huh?

If it is any consolation, I intend to do nothing in an active way to interfere with your plans. Since Chu is equally unlikely to desire my assistance, the two of you should be free to fight it out without my interference. After all, the trial would probably become much too interesting if I were ever put on the stand:

> Judge: Mr. Ashburn, based upon your testimony, I'm beginning to think that all scientists claim to have invented 90 K superconductors. Does this not seem a bit comical to you?
>
> Ashburn: Yes, Your Honor. I can hardly hold back the laughter.

By the way, Wu ran away from both Huntsville and Houston. The true story was of no more benefit to him that it would have been to Chu. I was the one helping UAH fight Houston. Why should I not have felt slighted -- watching a bunch of folks squabble over who said the word "yttrium" first? Should I not have been hurt by Ruling's declaration and deposition -- she even moved the date of the discovery to conveniently erase me and UAH from the picture. But her story is absolutely impossible to reconcile with Chu's more recent accounts (such as the one I provided you). Which one was lying? Ironically, Chu's later accounts (unlike the earlier ones like the Hazen book) were mostly accurate. The only deficiency is that they made a big deal about "thinking about yttrium" as you do. But even Chu conceded that the Yttrium samples made in Houston didn't work (like so many other groups).

Do you realize that the patent courts concluded that UAH made Y1.2Ba0.8Cu1O1 (yes O1). That was the basis for the decision against UAH. Anyone with high school chemistry can quickly conclude from this that Justice is not only blind, it's also dumber than dirt. If you think you were hurt through all of this, you needed to spend a couple of days in my shoes.

If you wish to fight over who "thought of Yttrium" first, that is a fight in which I have no interest. To me it is an argument for fools to enjoy. I don't claim to be the only person to suggest Yttrium or even the first. The (sic.) only know is that I was the unfortunate schmuck who figured out how to make it work -- a detail that is of interest to no one.

If my tone sounds hostile, it is not intended that way. The whole thing is admittedly frustrating, but I harbor no ill will towards anyone involved. The sarcasm is intentional, though. It's the only way I can survive thinking about all of this garbage without my head exploding.

One last thing you might keep in mind: Chu must live with the fact that when he looks in the mirror every morning, the man who looks back at him is a phony. If you want to take that from him, then I pity you, too. No matter how all of this ends (if it ever ends), I will never have to suffer with such a burden.

By the way, if you want to know the technical details of how the discovery happened, read my dissertation. It is written in blood.

Very Sincerely,

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Hi!
Date: October 1, 2006 at 1:32 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I can understand your reaction. However, please remember that I do not know "anything" that happened in UAH. I have just started digging into it. I contact you to find out what happened in UAH. I am not contacting you to fight for the iventorship or scientific recognition. I am not your enemy.

I ask you to give me, as well as yourself, a fair chance by taking yourself out of my story (a unfortunate fact), assuming that I am telling the true story "on Houston side" and carefully read through my affidavit again. Without knowing your case, my sufferings were as real and as deep as yours. Granted I am responsible too because, confused and hurt, I thought turning my head away and burying myself into research was the best thing I can do for the team.

How did court decide that UAH made Y1.2Ba0.8Cu1O1and used it against UAH? I feel Steven Kelber is much sharper than Charles Cox (I read Meng's deposition only after we had reported to UH administration).

Can you also forward the documented and published details on how Y1.2Ba0.8CuO4 composition was achieved and all of the other compositions you formulated during that time to me? I, for one, am interested in how did you figure out how to make it work. I want to read your dissertation. I would appreciate if you can send me a copy.

I apologize for having brought all your painful memories back. However if we want to set the record straight we need to piece the whole story together first. Now it makes much more sense to me regarding Wu's strange behaviors back then. What do you think he told me that “it is what we discussed in Houston” over our phone conversation? I am not sure I really understand it. He called Paul Chu first. However when Paul Chu asked him to come to Houston he asked to talk to me first. My feeling at that time was he had the concern that Paul Chu would put himself as first author (it had happened before and he complained about it to me). This was the reason I told him “don’t worry”. At that moment, as far as I am concerned, I had committed that if his observation was really superconductivity and stable (I was fighting with many unstable transient Resistivity-drops) then no one can take his first author position (again, here you have to take yourself out of the picture). I believe I have kept my promise.

We need to keep our communication channel open. It was exactly because we failed to communicate that gave them a chance to manipulate the situation and it ended up with what we are now. Can you give me your phone number? I think we may need to talk to each other in the near future. It seems like I need to reformulate my strategy. I need to talk to my consul then I will get back to you.

Best wishes to you and your family.

Pei Herng

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi!
Date: October 1, 2006 at 3:55 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Ashburn Jim ashburn@westar.com

Peiherng,

All I am trying to say is that whatever happened in Houston had nothing to do with the fact that Y1.2Ba0.8CuO4 was made in Huntsville. If truth is important to you, then you must accept that fact. All the garbage about "optimal interatomic distances" was Chu's lame attempt to reconcile what I told him I had done (when we arrived in Houston on the 30th) and the pressure measurement stuff. Once Chu heard me say "ionic radius," he figured he had some connection, but all the garbage about chemically mimicking the pressure effects was Paul's fantasy.

When the court concluded that we had made Y1.2Ba0.8Cu1O1 (because we often left the oxygen subscript off in our notes, which is formally an implied "one"), the composition fell outside the scope of the patent, which said that oxygen stoichiometry must be between 2 and 4.

Attached is a copy of part of my dissertation. Everything in it beyond the original La(2-x)Ae(x)CuO4 compositions (which were gleaned from the work of Michel, Raveau, and others) was MY work. It is not great science. It is no work of genius. But it IS mine. I do not say this out of pride -- I say it only because it is true. There are no sources from which it was derived -- beyond those I reference. And it all corroborates perfectly with our notebooks, lots of lots of data files (which I still have), and even some of the old samples. Through it all, I only marginally had Wu's support, which flagged as more and more samples didn't work.

The reason Wu referred to "what we discussed in Houston" was multi-faceted. First, part of him wanted to give something to Chu. Second, he needed Chu to push a paper through and was afraid to go it alone. Third, the truth (his grad student had defied his instructions to "start doing real science") would have been tremendously embarrassing. Fourth, he wished it HAD been a team effort. Even **I** was supportive of making it out to be more of a team effort than it actually was. The problem was that the "team" consisted of me and a bunch of student friends of mine who worked with me after hours. And even though the UAH faculty knew what really happened, no one wanted to push a story that it was a bunch of kids playing in the lab led by one hard-headed grad student who fancied himself a crystal chemist.

Basically, there is very little I need from Houston to put together the "whole story," as you call it. I'm sorry that this is the case. I honestly wish it were not.

You keep saying I need to take myself out of the picture. That's what Meng did in her declaration, and the whole thing was a lie. So how do I take myself out and still tell the story? It is not possible. The only thing both you and Chu seem to cling to is who said "yttrium" first. As I've said very clearly, I do not feel that is a relevant point.

By the way, if the wording of my dissertation chapter seems odd, the section was partly written in response to Hazen's book, which was Paul's first of many versions of the story. I have told the same story from the very beginning. Read the chapter and decide whether you think I made the whole thing up or not. But before you pass judgement, understand that I still have our old notebooks (with the handwriting of Wu, Torng, and mine interleaved within it -- mostly the latter). I have lots of associated data files. Lots of old samples, printouts, etc. It all corroborates with what I describe in my dissertation. And no one else has ever taken credit for all of the details in it.

Reality tends to lend itself to a LOT OF DETAIL.

If you want to get the true story out, I can appreciate that. However, I don't think the true story is what you hoped it would be. If you conclude that I am telling the truth and would be willing to corroborate MY story, it would be very much appreciated. If you choose not to, that is fine. There will be no hard feelings. There are plenty of more important things for both of us to do, I'm sure. My home phone number is 256-536-8793. Evenings this week will be very busy, and I will be out of town Friday - Monday. Probably the weekend of the 13-15th would be the best time to talk.

I can sympathize with you. Chu is a politician, not a scientist. He could not have been a good leader of those who really wanted to do science.

Jim

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Hi!
Date: October 1, 2006 at 5:11 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I did not ask you to take yourself out of the whole story; I only asked you taking yourself out while you are reading my story so that you can understand where I am coming from. I am not making any judgment and I do not have presumptions. You have totally missed my point. Remember I suggest that we collect and put everything together so Robert Pool can "investigate". No one will take whatever we say for granted.

Can you tell me exactly what happened in the meeting on Jan. 30th when you described what you had done to Chu? Was Wu around? If so then why Wu is the first author? You should be the first author. My understanding was that you did read the manuscript and there was no objection on authorship.

By the way, you forgot to attach your dissertation. Can you forward it again?

Pei Herng

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi!
Date: October 1, 2006 at 5:34 PM
To: Peiherng Hor peiherng@sbcglobal.net

Peiherng,

I have read your document. While I can dispute none of it, I only challenge the relevance of any discussions you might have had with Wu about Yttrium. While I wouldn't necessarily doubt that they occurred, the fact was that by the time I obtained the Y2O3, Wu was growing reluctant to spend much time making new compositions. Anything you told him never made it to me.

The page from my scribbled notes in the Science article -- that is what I showed to Chu. It is a simple diagram of ionic radius vs. charge patterned after a similar diagram I found in a book on mineralogy. I used it to describe how I had "derived" the Y1.2Ba0.8CuO4 composition from La1.8Sr0.2CuO4 by preserving the weighted average ionic volume of the RE and AE elements. Of course it was blind luck that the composition landed on the tie line between the Y2BaCuO5 and Y123, but the basic premise of the idea was sound -- yttrium was too small to support any perovskite-like structure on its own; it needed to be compensated by something much larger (Ba in this case) and a substantial amount of it. This was my contribution and it was the KEY to the discovery. The only missing element was the processing temperature, and I've told you the story about that.

The other piece of serendipity was the source I used for ionic radii. My solid state physics text at the time was Kittell's (sp?), which gave a radius for yttrium much larger than many other sources -- such as the CRC handbook. Had I used another source, the composition would have missed the Y2BaCuO5-Y123 tie line by quite a bit -- although it MIGHT have been close enough.

You can read all of this in my dissertation chapter. I confirmed that I did attach it to the previous email (as a pdf), but I will try again. If you can't find it in your email, let me know and I will drop it out on my website.

For what it is worth, I too would appreciate an apology from Ruling. I have little doubt that the lawyers drafted her declaration and coached her on what to say. I have no doubt that they convinced her that what she was doing was right. I would gladly accept her apology, and I would gladly defend anyone who acknowledged such a mistake. While what she did was wrong, I fully understand the means by which administrators and lawyers can manipulate and frighten people into doing their will.

By the way, I'm not sure how much Robert Pool can be trusted. There is a long story behind his Science article. Furthermore, I think he left Science magazine many years ago. You might see if anyone else at Science magazine has an interest in a follow-on story.

Jim

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

[The attachment Ashburn_Dissertation_Ch_2.pdf has been manually removed]

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi! (One more thing)
Date: October 1, 2006 at 5:39 PM
To: Peiherng Hor peiherng@sbcglobal.net

Peiherng,

Concerning authorship, I was just relieved that I was on the paper at all and thrilled that the UAH "team" was listed first.

Jim

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Hi!
Date: October 1, 2006 at 6:36 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I find your dissertation. I missed it because it was attached at the bottom of the long communication. One more question:

was Wu there when you described your work to Chu on Jan. 30th?

I do not have any idea about Robert Pool. The only reason I consider him is because he wrote that paper. I can accept and work with any one who may be interested in a follow-up paper as long as he is commited and sincerely trying to get the true story out. This should involve interview of Chu and Wu. One other possible approach is forming a scientific panel to investigate the whole thing. I have no confidence that I alone will be able to make it happen. Chu has become too powerful.

Pei Herng

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Hi!
Date: October 2, 2006 at 7:51 AM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Ashburn Jim ashburn@westar.com

Peiherng,

One last thing if you have any doubts. In the document you sent me, you included several pages from your lab notebooks (pages 16- 20 in the pdf files -- the pages are marked 50-54). The compositions on page 50 were the "next step" after what we saw with La1.8Hg0.2CuO4 and Y1.2Ba0.8CuO4 in Huntsville.

But here's the really good one... Look at the rather strange compositions on page 51 and the pages that follow. Now, tell me where they came from. The fact is that you can't. Chu can't. Ruling can't. Wu can't. You can try to reproduce them, but you will likely never be able to. And if, somehow you do, you will only prove to yourself that I've been telling the truth all along. If anyone wants to believe my story was fabricated later, then here is evidence from 30 January 1987 that it wasn't.

Once you've given up trying, or if you don't even want to try, then send me a request by registered mail asking for the answer and I will send it too with all the details.

My question here is, if what happened with Y1.2Ba0.8CuO4 on 29 January was your idea, or Chu's, or Wu's, then why on the next day were you guys making formulas made up by me?

Sincerely,

Jim

PS -- Also, I don't appreciate the fact that someone added "29-" to the top of the page. I wasn't there on the 29th.

I also don't appreciate someone writing (Y0.6Ba0.4)2CuO4 on a page from your 15 January notes (in a different color ink obviously inserted later) and claiming it was the missing SB-1 (composition). SB-2 and SB-3 were the bracketing compositions for YB-1 Y1.8Ba0.2CuO4 (tested around 7 January -- see your notes). YB-2 and YB-3 (mistakenly noted as SB-2 and SB-3 in the notebook) were the logical follow-on compositions. It's ironic that SB-3 originally had a lot of Barium, but then someone scratched it out and reduced it to make the bracketing composition. You were indeed close, as were many groups. But on top of everything, the discovery required a lot of luck (one could argue whether such luck was good or bad). Luck plus the shortcut that I happened to stumble upon.

Notice how these parallel YS-1, 2 and 3. YS-2 and YS-3 also appear to have never been tested either. So if you had ever tested these compositions and they failed (which was likely), how much longer would it have been before you came back to try even more of the alkali earths? The answer is too long. You would have been too late. After all, the discovery was inevitable. If not at UAH, then somewhere else within weeks. I have no delusions about any of this. I didn't make this discovery happen -- the credit for that goes to Michel, Raveau, Bednorz, and Muller. I did make it happen a couple of weeks sooner, though.

JRA

This is Macintosh Country. On a quiet night, you can hear Windows reboot.

From: Jim Ashburn ashburn@westar.com
Subject: Things More Important
Date: October 4, 2006 at 3:54 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Ashburn Jim jashburn@knology.net

Peiherng,

We have exchanged many emails, but so far we have discussed nothing of any real importance. That is why I'm sending this message.

I have known for over a year about your battle with liver cancer. So, whatever I may have said so far of the pain I endured since the discovery, I must acknowledge that it can be nothing compared to what you have experienced for so many years. I commend you for your courage, I will pray that you win your battle, and I want to encourage you to seek peace in your heart over all of these things.

Please tell Ruling that I forgive her for the things that have weighted heavy on her for so long, and I hope she will put all the things of the past behind her as I have.

Whatever you choose to do, test it to see if it the right thing to do. Be careful to do nothing out of ill will towards anyone, even those who have hurt you. Otherwise, you are no better than them.

I have found my peace in all of this. It is not an easy thing when I wish I could purge my memory of the whole matter and pretend I had nothing to do with it. But for me, the evidence is far too heavy to deny -- good to three significant digits, in some cases, as you have seen.

Once you feel you have investigated all of these things thoroughly and you still want to go to the press, I will do what I can to support you. And if it counts for anything, I will be appreciative. I can also suggest names of people with whom I have spoken over the years (some with reputable science publications) who have expressed interest in digging deeper into the events surrounding the discovery.

Just understand that I can only share what I remember, what I saw and heard, what I did, what I know to be true, and what the evidence supports. I cannot speculate on other people's motives or judge their actions.

If you choose not to pursue this any further, that is OK with me, too, since I have moved on to more important things in life.

I suppose if there is any apology to be given, it must be from me. Knowing what I know now, I should not have been so driven to do "something significant." I reaped the just rewards of my misguided motives. It would have been so much better had I allowed Bell Labs, or IBM, or some other group to find the Y123 compound. I should not have been as naive as I was, and I'm sorry for the pain that so many have endured as a result.

Sincerely,

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Things More Important
Date: October 5, 2006 at 9:43 PM
To: Ashburn Jim jashburn@knology.net, Ashburn Jim ashburn@westar.com

---

Jim,

Although my liver was attacked by it but it was not liver cancer. It is Sarcoma, a rare kind of cancer. So far it is fine. Thank you for your kind encouragement.

Please give me sometime so I can sort things out in my mind. Indeed, there are much more important things in life. However, what kind of life can it be if it there is no Truth and Justice in it?

There is no need for an apology to anyone. As I have already told you: I completely understand your reaction.

Best wishes

Pei Herng

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Fw: Re: An update
Date: February 7, 2009 at 2:54 PM
To: Ashburn Jim jashburn@knology.net

FYI.

--- On **Wed, 1/28/09, Peiherng Hor <*peiherng@sbcglobal.net*>** wrote:
From: Peiherng Hor <peiherng@sbcglobal.net>
Subject: Re: An update
To: "My Friends" <peiherng@sbcglobal.net>
Date: Wednesday, January 28, 2009, 10:53 PM

Dear friends,

I attached Dr. Paul Chu's response to my Complaint for your information. I also attached my communications with three UH Provosts. I repeatedly requested the formation of a specific committee to investigate my case which was recommended by the UH Grievance Committee and provided by the university policies and procedures. All my effort of resolving my grievance internally was in vain.

Past three years was a particularly difficult and frustrating time for me. Your moral support is one of the most important reasons that I can still maintain my sanity.

Best regards, Pei

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Saturday, February 13, 2010 1:13 PM
To: Ashburn, James
Subject: Re: Question

Jim,

Do you have the complete file of patent interference? If yes can I have a copy? What puzzles me is the earliest date of your patent application. I find that Wu filed a patent application dated on 2/13/87 and he was listed as the sole inventor. Your name was not there. Can you confirm this?

Peiherng

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Mon, February 15, 2010 11:03:02 AM
Subject: RE: Question

Peiherng,

Yes, I have the complete file of everything. It fills three large boxes and probably weighs about 100 lb. The original application left me off because the university originally had to corner Wu to get him to consent to the application. Wu had already bought into Chu's scam. Things were so rushed, no one even asked Wu if anyone else should have been listed. However, since all the students and faculty in the department knew what had really happened (having witness much of it as it happened), eventually things got to the administration who quickly corrected the application. So, my addition as an inventor was in a later amendment. I didn't have a clue about any this until I was told that an application had already been filed and was asked to sign the paperwork to have me added.

Hope that helps.

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Monday, February 15, 2010 5:26 PM
To: Ashburn, James
Subject: Re: Question

Jim,

It is so sad that the whole thing turned out to be like this. Many things surfaced since I stated looking into this YBCO disaster. Ruling told me that Wu went to Chu and demanded for money after he learned from Ruling that we received cash payment from DuPont under a licensing agreement relating to the YBCO and related rare earth substituted patent applications. Wu received $137,000 from Chu. This was later confirmed in writing in Chu's response to my grievance.

Your response helps a lot. I may need more help from you to sort things out.

Peihenrg

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Mon, February 15, 2010 5:46:20 PM
Subject: RE: Question

Peiherng,

I'm happy to say that I never received a dime – it's all dirty money as far as I'm concerned. I never wanted money or fame in the first place – only the truth. I had a chance to profit from it (a five figure sum), but I told the UAH lawyers to tell the Houston/DuPont lawyers to shove their money up their butts. It wouldn't have mattered if they had offered me millions -- I will die poor before I ever accept payment to hide the truth. If you investigate this, I can assure you that anyone involved will deny that such an offer was ever made, and I'm sure nothing would have ever been drafted on paper until a deal was struck.

As I've mentioned, I can make a very strong case that I had more than a little to do with the discovery. What you've seen so far is the tip of the iceberg. However, it is unlikely that I will ever get the chance to play all my cards.

It makes no difference, though. I have moved on with my life. I am content that the truth will never be known by anyone except the small handful of people who witnessed it.

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Tuesday, February 16, 2010 10:46 AM
To: Ashburn, James
Subject: Re: Question

Jim,

It does not seem to surprise you. Did you know about Wu receiving money from Chu before I tell you? I only learned about this when Ruling mentioned it to me in 2006.

The reason I tell you that Wu took money from Chu is just to set the record straight that 1.) I did not know this transaction and I did not have any idea about whatever deal if Chu and Wu might have made back in 1987 and 2.) I will never believe Wu's claim that whatever he had done was independent from our discussion.

Can you tell me who were involved in and when did they making this cash offer to you? Was Charles Cox one of them? I learned that he is an alcoholic and out of job now.

Wu insists he told you to replace La by Y and you came back with composition. As an outsider of your group I have no way to tell who is telling the truth. I will have to leave it to you and Wu to sort it out. I can only tell you what I have found out from Houston.

I will do whatever I can to make sure that you will have your chance to play all your cards.

Peiherng

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Tue, February 16, 2010 4:49:46 PM
Subject: One more thing...

In the article I sent you the link for, you will also see where Wu says, "The whole discovery process seemed to be very simple. It just came in one shot. At that time, we made two samples, two different compositions, and one of them just happened to work." What was simple for him was a lot of work for me. The other composition he is referring to is Y1.8Sr0.2CuO4, the one I insisted couldn't work (and the sample I still have in my possession with Wu's handwriting on the container). If you guys ever told Wu to mix yttrium with barium and/or increase the alkali earth, he apparently never got the message. And besides, you guys had yttrium in early January (contrary to many accounts). There was no reason you couldn't have made Y1.2Ba0.8CuO4 yourself. But even Chu's later accounts (which I've referenced in previous emails to you) confirm that even after our call to Houston on 29 January, you guys could not make it work. That's probably because Wu forgot to tell you our furnace temperature (one of the luckier parts of the discovery).

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Wed 2/17/2010 7:25 PM
To: Ashburn, James
Subject: Re: One more thing...

Jim,

I have spent much of the day with my attorney to prepare my case against Chu. You may have already known about it.

I have researched into this YBCO disaster in the past four years and I have a pretty good idea what was going on. I just want to say that I am not your enemy and you do not has to prove anything to me. You need to sort it out with Wu. In my affidavit that I sent you in 2006 I have never disputed the fact that you guys made the first YBCO sample.

The YBCO disaster is your invention. I can not take credit for it. I just happen to agree that, sadly, the whole YBCO thing has turned into such a disaster due to a handful of people's selfishness and greediness.

Give me sometime I need to dig out some old email and forward them to you. I hope it can show that I am with you all along since 2006. If possible I hope we can talk face to face.

Peiherng

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Thursday, February 18, 2010 12:19 PM
To: Ashburn, James
Subject: Re: Question

Jim,

Your tone is nothing compared to Chu called me a "pair of hands" at best. I understand your frustration and feeling so it does not offend me at all. I am glad you can come around and respond to me so quickly. It is a critical period of time now and it is very important that you stay calm and focus. I have a very busy schedule for the rest of the week so I will not be able to communicate with you as much as I would like to. However, if possible, I will need you to do something for me because the time is running short.

You see I have also found that many places in Ruling's lab notebook were tampered. I have already pointed out some obvious places to my attorney and Chu's attorney. I demanded to review the original notebooks (I only have copies) but they said that they can not found the original notebook with page numbers from H001 to H204. This is the most important one and I wonder if you have a copy at your place. Your copy will at least show that my copy is the same as what they used back in 1990.

I believe that the best place to identify Chu's fabrication of the lab data/record is in his and Ruling's declarations and depositions. I need a complete file for all their declarations and depositions so that I can trace back and dig out all the lies. I can tell if the evidences they used in their declarations and depositions makes technical sense or consistent with what we were doing during that period time.

It is also very important that you spend some effort to identify the people from UH side who offered you cash back in 2001. We may track him down and depose him.

I hope I am not asking too much from you and feel free to ask any question you may have. I will do my best to give you a answer.

Peiherng

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Thu, February 18, 2010 1:35:10 PM
Subject: RE: Question

Peiherng,

I have copies of much of the material you mention (I have all of the UAH files in my possession). Concerning "tracing back and digging out all the lies," I have already done much of that work for you. I can send you some very exhaustive and careful analysis of many of the original documents (notebooks, declarations, etc.) which will walk you through the tens (if not hundreds) of serious inconsistencies in the original story offered by UH to the patent office and show you in great detail how various parts of the lab notebook and declarations/depositions do not match.

I will actually have some free time this weekend, so I will dig through it all. There may be more material than I can conveniently scan and email you. If so, I could send it by overnight mail. Just in case, send me a good mailing address for the material.

I will also search my email records for anything about the offer made to me.

To hear that Chu would call you a "pair of hands" disgusts me more than you can imagine. While I didn't spend a lot of time in Houston, I was there long enough to know better. You can see my footnote below for more on this.

One last item (very important)… If I have set this email up correctly, any response should go to both my work AND home addresses. If it fails to go through properly, manually set the "to addresses" to:

James.ashburn@qinetiq-na.com jashburn@knology.net

I will do what I can to help you. By the way, I don't know all the details of what I was being asked to forfeit when I was offered money. The gist of the deal was that I would agree not to actively cause Chu and/or Houston/Dupont legal problems in the future, meaning that I would probably be violating the terms right now by helping you IF I had consented to the deal. After all these years, I now realize that I made the right decision. For me, the truth is not for sale at any price. I would much rather die poor. The UAH lawyer basically called me a stupid idealist. I'll take that as a compliment.

I've noticed you've sent me a couple more emails. I'll take a look at those now.

Jim

Footnote: There was a similar point in my experiences where Wu, while doing a presentation at UAH, claimed that he told ME to make the original Y1.2Ba0.8CuO4 material, that he had to do so multiple times, and that I was responsible for the discovery not happening earlier.

In actuality, when I decided that I might like to try the yttrium compound I had formulated around 15-16 January (the Y1.2Ba0.8… composition), I contacted a friend of mine (the Daniel Shultz I mentioned previously) about where would be a likely place to quickly find some yttrium oxide (the chemistry stockroom had none). Daniel, who happened to have an undergraduate degree in ceramic engineering, suggest any ceramist, describing for me things like yttria-stabilized zirconia (at that time, I had never worked with crucibles of that material). I responded that I knew of a ceramist at the Space Sciences Lab (SSL) – Ed Ethridge. Wu was going out to the SSL frequently to do his Hall Effect measurements (I still have much of the data – dated), so I asked Wu if he could ask Dr. Ethridge for some.

After the second or third request (Jones Hamilton, mentioned earlier, was witness to at least one of these), Wu finally returned with some (in a plastic bag in an unopened can). Dr. Ethridge sent only one instruction – keep it clean. This was consistent with Daniel's quip that most ceramists regard transition metals like copper as impurities since they kill the transparency.

Given the request and the fact that I was still half-hearted about even trying the Y1.2Ba0.8… formulation (plus, I had lots of other ideas to try), the can sat on a shelf in the lab for the better part of a week. Then on 28 January, I tested a La1.8Hg0.2CuO4 compound (if I sent you my dissertation chapter, the connections are all explained). For me, this was the piece of evidence I needed that I should try the Y1.2Ba0.8… formula. When Wu noticed that I was getting ready to crack the Y2O3 can, he suggested that we be more systematic and try Y1.8Sr0.2CuO4 first (which I was sure couldn't work). So, I made up Wu's formula and asked C. J. Torng (the other student in our lab) to make my Y1.2Ba0.8CuO4 sample (C. J. can confirm all this). You know most of the rest of the story.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Question
Date: February 18, 2010 at 5:14 PM
To: Ashburn, James James.Ashburn@QinetiQ-NA.com, jashburn@knology.net

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Jim,

That will be very helpful. The discovery period will end on March 3rd. I hope I can get all the information produced and filed to the court by the deadline. Ruling's attorney just filed an intervention yesterday. If Judge agrees on her intervention then we may have a extension for the discovery period,. The hearing is set on March 9. If not March 3rd is the absolute deadline. So we need to shot for March 3rd.

Tosave your effort I have already had Ruling's 1989, 1990, 1993; Chu's 1990 declarations and Ruling's 1993 deposition. I hope to have a complete copy from H001 to H204 but I do not need any pages beyond H204. Of course your analysis is not limited to H001 - H204. There is also one 1990 declaration that I was cheated to sign because I was not aware of the other declrations of Chu's and Meng's. Jjust by looking at the writing from that one i see no problem. But when it is put together with other declrations then the meaing becomes totally different.

Foward any other documents that you feel may be useful and I will appreciate if you can tell me why you think it is useful.

Peiherg

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Mon, February 22, 2010 11:47:35 AM
Subject: RE: Question

Peiherng,

I spent several hours going through boxes of files yesterday. I will try to inventory what I haveand send you a list in the next day or two. Then you can tell me what you would like me to copy and send you.

Good Luck,

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Monday, February 22, 2010 1:29 PM
To: Ashburn, James
Subject: Re: Question

Jim,

I was quite hesitated when I asked you for the information. Because I understand how it will affect you when you go through these files. There is still a long and hard battle ahead and it is not worthy paying any more price for this, especially, if your family is dragged into it. So please keep calm and stay focus. Otherwise it makes no sense to continue.

My attorney told me last Friday that he had postponed Chu's deposition to after March 9th. Originally it was scheduled on March 3rd. He told me we had a extension of the discovery period as long as it is mutually agreeable between my attorney and Chu's attorney. So take your time and try to be emotinally detached.

Best Peiherng

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Tue, February 23, 2010 8:55:45 AM
Subject: Mailing Address

Peiherng,

Before I forget, I need to get a mailing address for you.

Thanks,

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Tuesday, February 23, 2010 1:41 PM
To: Ashburn, James
Subject: Re: Mailing Address

Jim,

My attorney asks for your address and phone number. Can you email them to me? I guess he wants to list you as a potential witness.

Pei

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Thu, February 25, 2010 12:00:45 PM
Subject: Items to be Mailed to You Soon

Peiherng,

Given the time required to copy so many potential items, I had to be very selective, and I did not have time to put together an inventory for you to review.

I did not have any declarations or depositions from any of the Houston team members beyond the ones you mentioned. I will provide declarations from Wu, myself, and Torng. I did have several portions of the Houston lab notebooks (apparently most or all belonging to RuLing). The bulk of the other items I will be sending are largely focused on answering these questions:

1) When did the discovery occur?
2) Where did it occur?
3) What knowledge was critical to making it occur?
4) From whom did that knowledge originate?

I hope to have everything in the mail tomorrow by overnight delivery. I will approve weekend delivery if that is an option.

When you get a chance, I am very curious about the nature of your current claims against Chu. Also, is RuLing a party in this case, too? If so, what is her position on all this?

Thanks,

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Thursday, February 25, 2010 1:01 PM
To: Ashburn, James
Subject: Re: Items to be Mailed to You Soon

Jim,

For now I do not need information from Alabama side. They will not be useful for my lawsuit against Chu and the pending lawsuit is my focus now. I am saturated and there is no way I can review them under the current situation. So please hold on to the documents and wait until I ask you to forward them to me. Your information will be very useful if you decide to join the suit.

What I need from you now is whatever information that you have from UH.

Sorry I thought you had already known about the nature and the details of the lawsuit. The patent is not only for YBCO. There are whole series of rare earth substituted superconductors that Chu stole from me. It is all public information now and if you Google "Hor v Chu" you can follow the instructions to download all the information we filed to the court.

For your information I have attached my original Complaint and Chu's Answer. Feel free to call (Cell: 713-5502845, H: 713-7283734) and tell me what you think after you review the documents.

Pei

From: Ashburn, James James.Ashburn@QinetiQ-NA.com
Subject: RE: Items to be Mailed to You Soon
Date: February 26, 2010 at 2:03 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: jashburn@knology.net

Peiherng,

Given what you have written in your email, it is doubtful that any of the items I mailed to you today will be particularly helpful to your case. The only exception may be some of the pages from RuLing's notebooks.

I would hope that at some point the differences between our accounts could be resolved – I think this is very achievable. With very few exceptions, the conflicts are largely matters of emphasis than of facts.

The story I've tried to so hard to communicate -- that the YBCO discovery was far more than a question of who blurted the word yttrium first -- is one that most of the other principals at UH and UAH seem to wish to ignore, one that is far too complicated for the press, and one that seems to completely mystify the patent courts. Unless MY story is understood, the question of the other rare earths may similarly defy understanding. In my view, any mention of the other rare earths prior to 29 January would be largely irrelevant given that the other pieces of the puzzle were not in place – 1) which alkali earth? 2) how much? 3) what processing temperature? If you would concede this, then you may find its truth helpful in isolating the events responsible for the Re-Ba-Cu-O discoveries to the March timeframe, which might actually prove advantageous to you.

While I contend that many of your claims with regard to the YBCO discovery are incomplete or irrelevant, I note that you wrote these claims before contacting me a year or so ago, and I am thankful that after investigating the matter more thoroughly, you seem to have conceded, at least partly, that my story is credible (e.g., the 3-digit precision formulas of 30 January). If there is an opportunity, I would certainly be appreciative if you could amend some of your claims. My problem with them is much less a question of the accuracy of what you claimed to have done and far more a question of what you suggest to be their relevance to the YBCO discovery. In other words, I think you are stating what you believe to be true, but your extrapolations were colored by your very limited knowledge of what actually transpired in Huntsville.

On the other hand, with regard to the period you describe beginning 6 February 1987 and continuing through March of that year, I can offer nothing, as I did not witness any of those events. However, I find your account of that period very credible given what I witnessed during my brief periods in Houston. Just as you have tried to show that the move to the other rare earths was a "jump," not a slow progression, I too have tried to communicate that the $Y1.2Ba0.8CuO4$ composition was similarly a "jump" from what was our reference composition at the time – $La1.8Sr0.2CuO4$.

Given the scope of the application you've attached includes YBCO, I would contend that I too should be included as a co-inventor. I wish I could be more helpful with regard to the other RE materials. I would have hoped RuLing could help you more, but obviously her original testimony would restrict just how forthcoming she can be… on my behalf as well as yours. In many ways, she is the key. However, one can only imagine the repercussions if she were to retract her past testimony. Is she prepared to do that?

The items I have mailed should arrive at your home tomorrow. I will try to send out an email explaining them very soon.

I will have to take more time this weekend to read through all the material you provided. I will be most interested is seeing "Chu's answer."

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Fw: Jim Ashburn
Date: March 13, 2010 at 11:27 AM
To: Jim Ashburn jashburn@knology.net

Jim,

I finally located one of the old email I promised to send to you. Here is Prof. Ting's comment to Wu on the email communications between us that I had forwarded to him. Try not to become too emotionally involved.

Pei

----- Forwarded Message ----
From: Pei Herng Hor <phor@uh.edu>
To: Pei Hor <peiherng@sbcglobal.net>
Sent: Tue, January 2, 2007 4:32:19 PM
Subject: Fw: Jim Ashburn

----- Original Message -----
From: Chin-Sen Ting
To: 'Hor Hor' ; 'Pan Pan'
Sent: Monday, December 11, 2006 12:03 PM
Subject: FW: Jim Ashburn

----- Original Message -----
From: Chin-Sen Ting [mailto:csting@mail.uh.edu]
Sent: Monday, December 11, 2006 12:03 PM
To: 'Maw-Kuen Wu'
Subject: RE: Jim Ashburn

Dear Maw-Kuen,

Are you coming to Houston for the Nano-Conference in February? In case you will, I would like to invite you for a dinner.

I completely agree with you, it is your group in Huntsville first made the YBCO sample and detected its HTS around 90k.. But I am sympathetic to the situation of Ashburn. Even though he was told to make the sample, people should not regard him just as a pair of ordinary hands because no one could ever imagine that the sample he made had a Tc reached 90K. In fact Jim had a pair of golden hands which beat all other hands in the world including those in Houston. Without Jim's contribution, the HTS history may be totally different. A good example is the discovery of superfluid in He^3. The predictions were made in the 60s by several physicists, but the discovery was made by a Cornell student in the midnight of someday in 70s while his thesis advisor was in sleep. Since the advisor suggested the problem and provided the environment to do the experiments, as a result both the student and the advisor got the Nobel Prices in Physics, but not those made the predictions. The predictions in nowadays are not very expensive. From this, I deeply believe that Ashburn's contribution to YBCO has not been properly recognized and rewarded. Your contribution to YBCO is well established, and by promoting Jim Ashburn to the level he deserves could only enhance your reputation.

Merry Christmas and Happy Holidays.

Best Regards,

Chin-Sen

----- Original Message -----
From: Maw-Kuen Wu [mailto:mkwu@phys.sinica.edu.tw]
Sent: Friday, December 08, 2006 9:27 PM
To: Peiherng Hor
Cc: Prof. C.S. Ting
Subject: Re: Jim Ashburn

Dear Periherng,

I am now in Hong Kong for a cross-strait conference on nanotechnology. I'll be here until the 12th. I'll get back to you when I return to Taipei . My postdoc, Dr. Chen, has been learning from your postdoc to get the crystals ready for further measurements. I'll tell her your suggestion about electron beam strength.

Dr. Wang is still working though he is formally retired from the Institute. I'll tell him about your interests. It is certainly possible for you to collaborate if you have common interest.

About Jim Ashburn, I have always cited his contribution to the discovery of YBCO. But it is certainly an over-claim if that was done sorely by him and the other student Torng. In fact, Torng was even not there when the first measurement was done. One thing for sure was that, indeed, the decision of looking into YBCO was not from the results of pressure work, though certainly it was an important guideline. We did have extensive discussions at the end of '86 and early '87. It was I who suggested to use Y to replace La, and Jim came back with the composition. Anyway, it was already 20 years after the first work. It is my belief that we should not live in the past. And I was very much satisfied with the fact that I was there to witness the event first occured.

Best wishes, Maw-Kuen

On Fri, 8 Dec 2006 05:35:26 -0800 (PST), Peiherng Hor wrote

> Maw-Kuen,
>

> Is there any progress looking for the charge odering in our crystal? You need to tune the elctron beam as low as possible in order to see it.
>

> I am very interested WK Wang's work in your institute and I would like to see if there is a possibility for you to foster a collaboration for us. What is the best time to call you to discuss this?
>

> Attached is a paper that Ting found on the web and forwarded to me. It is shocking to read. If it is true then you really mistreated him. You owe him an apology.
>

> Peiherng
--
Open WebMail Project (http://www.phys.sinica.edu.tw/)

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Jim Ashburn
Date: March 13, 2010 at 5:12 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

The irony of all this is that I did everything BUT make the sample. Since I had to make Wu's Y1.8Sr0.2CuO4 sample, Torng ended up making mine. And given how prone I am to careless errors, I could have easily messed up my own composition had I been making it. Ting's comments are very kind, but the hands he is looking for belong to C. J. Torng.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Jim Ashburn
Date: March 17, 2010 at 10:01 AM
To: Jim & Greta Ashburn jashburn@knology.net

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jim,

I think Ting's point is that no one can "predict" the high Tc in YBCO. So even if Wu had the idea of Y-substitution and had came up with the composition by himself and "directed" you to make the sample your contribution to make the sample is still as great as the one who proposed to do it. Wu can not treat you just as a pair of hands. Was Torng listed as a co-inventor in the Alabama patent?

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Jim Ashburn
Date: March 19, 2010 at 8:34 AM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I'm sorry I did reply earlier. My first cousin committed suicide over the weekend. In response to your question, C. J. Torng was not list as a co-inventor.

I did contact C. J. recently just to see how he is doing. He goes by the name "Terry" now, by the way. He's working at a company in the SF bay area called Magic Tech. His youngest child will be leaving for college this summer. I'm glad you reminded me -- he still owes me a picture of his family.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: May 27, 2010 at 3:22 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

Do you have any statements, declaration and/or deposition of Paul Chu? I found that he had used Ruling to produced numerous statements and declarations but he did not have too many statements except his 1990 declaration. If you have anything in writing from him other than his 1990 declaration please forward them to me asap. We will take Chu's deposition during the week ofJune 14. I would like to know if there are questions that you would like to ask. I will ask J Beverly to ask him during the deposition.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition
Date: May 31, 2010 at 5:02 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Jim Ashburn james.ashburn@qinetiq-na.com

Pei,

I've been out of town for the holidays. I'll try to give this some thought and send you a response in the next day or two.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: June 1, 2010 at 6:12 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

If you have completely put the whole thing behind you and free from it now then you should not think about it and should not respond to me. This lawsuit is my hell that I shall go through alone.

Pei

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Thu, June 3, 2010 9:55:33 AM
Subject: RE: Chu deposition

Pei,

I got your last email. If it's any consolation, you are not necessarily alone. The first 2-1/2 years after the discovery quite literally almost killed me. It would be difficult to express in words what it was like. The decade that followed was somewhat better, but still had some very painful moments. Losing the patent case on what was misunderstood shorthand compounded by a typographical error was the culmination of that period.

Concerning deposing Chu, I would ask these things (in this order):

1. I would show him the "three-digit precision" compositions in Meng's notes from the period shortly after the discovery and ask him if he can derive those numbers. If not, ask him if he knows who formulated those compositions. Ask him if he is aware that Jim Ashburn formulated those compositions. If he concedes this as a possibility, then ask him why a graduate student from another school would be directing the formulation of materials to be fabricated and tested in the Houston lab, particularly during a time one would anticipate furious activity on the YBCO material.

2. Ask him if he recalls Wu showing him (during the Jan-Feb '87 visit) a diagram Jim Ashburn had made of valence vs. ionic radius for various elements. Ask him if Wu related to him anything about Jim Ashburn's role in the precise formulation of Y1.2Ba0.8CuO4-y.

3. Chu has repeatedly claimed that the use of yttrium was to exploit its small size to mimic the effects of pressure. If that is the case, then a) why did Y-Ca-Cu-O and Y-Sr-Cu-O not receive more attention than Y-Ba-Cu-O and b) how was it that the successful composition has about four times the typical amount of the alkali earth element, in this case the very large barium ion. Ask him if he is aware that the average ionic volume of the Y1.2-Ba0.8 combination almost precisely matches that of the La1.8-Sr0.2 composition (the 40 K material). Ask him if he is aware that Jim Ashburn states that this was how the Y1.2Ba0.8CuO4-y composition was derived. Ask him if he is aware that very similar mathematics were used to formulate the "three-digit precision" compositions mentioned earlier. Ask him if he has ever written about these ideas or documented them anywhere.

4. Ask him to describe as completely as possible the compositions that were formulated and tested in Huntsville during the period of December 1986 and January 1987. Ask him to specifically include attempts at formulating "new materials" (i.e., compositions other than those already known to and previously documented by Michel, Raveau, et al.). If he cannot give precise compositions, ask him to list the elements that were included in these materials.

5. I would also read for him the sections in the papers of his I provided you where Chu described attempting to make yttrium samples in Houston in the period between the "29 January phone call" and the arrival of the Huntsville team. According to his paper, Wu told him that we (Huntsville) did what was "previously discussed in Houston." Ask him why the Huntsville team would not "divulge their composition" if the matter had already been "discussed previously in Houston." Assuming there was some mutual understanding of what that meant and that whatever information to which this refers was sufficient to achieve the discovery, then I would ask how it is that he describes those materials made in Houston as failing to show superconductivity. I would ask him if this suggests that whatever was key to the discovery was still unknown to the Houston team.

If there is additional expense incurred as a result of these questions, please let me know and I will do what I can to compensate you.

On my way home after the discovery on 29 January 1987, I passed the site of an automobile accident. As I drove by, a truck was just then carrying away the remains of a small car. I later learned that the vehicle was driven by a young lady named Jenny Lee Simpson (about my same age at the time), who lost control of her car, struck a large tree growing only three feet from the shoulder of the road, and died when her car burst into flames. All of this was happening while I was celebrating what I thought would be the greatest moment in my life. It was not long before I came to wish that I could have died there instead.

In my dissertation, I included this dedication:

"This dissertation is dedicated to the memory of Jenny Lee Thompson (sic.), who lost her life on the twenty-ninth day of January 1987 when her car struck a tree only five hours after the discovery. One bright summer morning 496 days later men came and cut the tree down, sweeping away the flowers at its base which had been so carefully tended by those close to her. Though I never met her, those flowers served as a daily reminder to me as I drove to school each day of the truly important things in life, a reminder that can never be swept away."

I pray that you soon find peace in all of this.

Sincerely,

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Thursday, June 03, 2010 10:12 PM
To: Ashburn, James
Subject: Re: Chu deposition

Jim,

I have copied and emailed your questions to J. We will meet next week preparing for Chu's deposition. It is up to J to decide what questions he will include in deposing Chu. Do not concern about the cost, I can manage.

Do you have any other statements from Chu besides his 1990 declaration?

Pei

From: Pei-Herng Hor peiherng@gmail.com
Subject: Re: Document deposition
Date: June 3, 2010 at 11:11 PM
To: Ashburn, James James.Ashburn@QinetiQ-NA.com, Jim & Greta Ashburn jashburn@knology.net

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Here is Chu's response to my grievance. Take a look but should not be disturbed.

From: "Ashburn, James" <James.Ashburn@QinetiQ-NA.com>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Mon, June 7, 2010 10:04:26 AM
Subject: RE: Chu deposition

Pei,

Thanks. I think I have sent you everything I have of Chu's in writing. The only other item I can think of are some APS videotapes. However, my recollection is that they have nothing of significance on them.

Unfortunately, I was never able to locate the MRS videos made by Rustum Roy at the Spring '87 Meeting. The people with whom I've spoken who saw those videos say they are quite compelling. In fact, that is how I came to meet Dr. Roy. He said that during his interviews/interrogations of Wu and Chu, while both were very evasive since he interviewed them separately and they hadn't had time to coordinate their stories, Dr. Roy was able to determine one thing – that there was a grad student in Huntsville who apparently had a lot more to do with the discovery than the two wanted to freely admit. Similarly, it was after Robert Pool of Science Magazine viewed the tapes that he wrote the article "Superconductor Credits Bypass Alabama."

Regrettably, there was only a single copy of those tapes at the MRS headquarters. Somewhere between 1987 and about 1994, the tapes were either lost or stolen – one my many frustrations in the entire saga.

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Tuesday, June 08, 2010 2:05 PM
To: Ashburn, James
Subject: Re: Chu deposition

Jim,

It will be really nice to have the tape. Do you think Robert Pool may have a copy? Several questions:

1. What is the exact date of the MRS interview?

2. I feel that Chu and Wu made a deal pretty early. It can be as early as when you guys came to Houston to measure the Meissner effect at the end of January 1987. It will not be later than the end of 1988.

3. Do you think that Wu intentionally suppressed your contribution during the interview which is before he and Chu could make any deal? I want to narrow down the time period they cut a deal.

4. This is an old question that I never get the answer from you, when you were at Houston in late January 1987, under what situation that you told Chu about your work and was Wu presented?

5. This is another old question and I expect a straight answer: Had Wu ever mention Y substitution to you before you start matching ionic size to maintain perovskite-related 214 structure?

6. Can you find/suggest someone to write and publish a book on the “discovery of YBCO”?

7. Do you consider/want to write the book with me?

Pei

From: Ashburn, James James.Ashburn@QinetiQ-NA.com
Subject: RE: Chu deposition
Date: June 9, 2010 at 1:23 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: Jim & Greta Ashburn jashburn@knology.net

Pei,

I have tried on and off for years to find the MRS tapes without success. Dr. Roy has searched for them. Several folks at the MRS offices have searched. I even tracked down Robert Pool in Tampa, FL years after he left Science magazine, but he did not have copies.

Answers:

1. The tapes were made at the Spring '87 MRS meeting – either March or April, I think.

2. Based upon what Wu told me, he was already in discussions with Wu as early as our Jan- Feb '87 trip. Even after the UAH application was filed, Wu was still trying to cut a deal with Chu. At some point in '87 in a discussion in the furnace room in our lab, Wu even talked percentages. All I recall is that he suggested something like 5% for me. I would never have accepted such a deal anyway. I was more content to get nothing than to be relegated to a bit player in the discovery.

3. In Wu's mind, he was still trying to convince himself that his contributions were more significant. At some point in the spring, he even wrote in one of his notebooks, "1/25/87 Try Y1.2Ba0.8CuO4." I confronted him on this later and he conceded that he added it after the discovery. I also took the liberty of "preserving his confession." Concerning determining a specific date for a "deal," I doubt there was ever a moment when things solidified. I suspect there were on-and-off talks all during '87 and '88.

4. I seem to recall standing in the hallway between the two labs (the one with the offices) when Wu showed Chu my hand-drawn "ionic radius vs. valence chart" and mentioned some of what I had been doing. Chu was obviously intrigued, because that's why I was given the task of formulating many of the compositions you guys made during the next few days – the ones in the Meng notes with the three-digit composition and well as some of the heavy metal substitutions. Wu could not have described much to Chu because he really didn't know very many of the details. He assumed that what he knew (very little) was all there was, which is partly how he downplayed my contributions in his mind. During that Dec. '86 – Jan. '87 time frame, I, like everyone else, was working 80+ hour weeks in the lab. What Wu didn't know was that I was putting another 40+ hours in at the library every week learning everything I could about crystal chemistry, coordination chemistry, mixed valence oxides, perovskites, Jahn-Teller effect, etc. What Wu saw may not have looked like much, but it narrowed the search to a small handful of materials, very much unlike Chu's "patent the periodic table approach" -- AxByCzDw (A can be any of these elements, x can run from this to that, processing unspecified, etc., etc.).

   It is clear that neither Chu nor Wu seemed to have any understanding of the importance of the crystal structure – their main obsession seemed to be the multi-phase, interfacial superconductivity idea. I, on the other hand, was obsessed with the K2NiF4 "double perovskite" structure and was looking to preserve it, not replace it.

5. Probably, along with at least a dozen other elements. Everyone could and was suggesting materials much faster than anyone could make them. I would be surprised if there was anyone in either lab (Huntsville or Houston) who didn't consider yttrium. After all, after the alkali earth successes with Sr and Ca in the La-M-Cu-O materials, it was easily the most obvious candidate to anyone with a high school chemistry background. Even a good friend of mine, Jones Hamilton, a student and TA in the physics department was an yttrium advocate before the discovery – perhaps the biggest. After I mentioned to him that I had an yttrium composition on my list of candidates, it was partly his urging that prompted me to try to locate some Y2O3. Another friend, Daniel Shultz (BS, Ceramics Engineering, Ga. Tech) suggest that I locate a ceramist. Both these people will testify to these events. After my discussions with Daniel, I asked Wu to see if he could get some Y2O3 from Ed Ethridge, a ceramist at the NASA Space Sciences Lab.

6. I've tried. I even flew up to Pennsylvania to meet someone about it, but it never materialized.

   I even have a good start on one myself; I have boxes of material together and organized for this purpose. It's just very hard to write. Even when I'm in just the right state of mind to do it, it is still like having all of the blood drained from my body.

7. I would consider that. Certainly our collective story would carry much more weight.

As a child, I was obsessive about school, learning, and achieving. I graduated valedictorian of a class of about 350 students in Huntsville, a high tech town with some pretty bright kids. I was a national merit finalist. In high school, I won regional contests in everything from biology to poetry. In college, my GPA was almost perfect – only 2 B's in over eight years of undergraduate and graduate work. In my first job, I became one of the youngest "Fellows" in the company. In my

second job as Chief Scientist of a small company, we grew from 50 to 200 people in just a few years and made the Inc. 500 list twice. Even in my hobby (which happens to involve a lot of math), I am the best at what I do.

But being successful as the world measures success is overrated. Not only has it never made me happy, it has even brought me much misery as you well know. My focus is now my family. I do want to write a book someday – the truth is important. But at this stage in my life I have even more important things to do.

I hope all goes well for you, and I truly wish you peace and happiness.

Jim

From: Peiherng Hor [mailto:peiherng@sbcglobal.net]
Sent: Wednesday, June 09, 2010 4:37 PM
To: Ashburn, James
Subject: Re: Chu deposition

Jim,

Are those formulas listed on H51some of the formulas you wrote down?

Pei

From: Pei-Herng Hor peiherng@gmail.com
Subject: Re: document email
Date: June 10, 2010 at 8:33 AM
To: Ashburn, James James.Ashburn@qinetiq-na.com, Jim & Greta Ashburn jashburn@knology.net

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Jim,

Have you received my email on June 3 and two more emails on June 6?

Pei

From: Ashburn, James
Sent: Thursday, June 10, 2010 10:31 AM
To: 'Peiherng Hor'
Subject: RE: Chu deposition

Pei,

I have scans on my computer now of what I believe are H52 and H53 – they have the 3-digit formulas with 5 elements. Those are exclusively mine.

If I recall (I don't have the page in front of me, so I'm relying on memory here), H51 had a longer list of mostly 4 element combinations that included some heavy metals – Pb among others. I can't recall if Bi materials were in the mix. If so, those were definitely my compositions. My recollection is that parts of the list were generated somewhat collectively by a group of us, but very much guided by my suggestion that we carefully avoid small ions that might replace copper (or try to balance them with enough large ions, very much in conflict with Chu's "simulate high pressure with small ions" claim). Thus, you will note that the average size of the "A-site" ions on that page tends to be relatively large – at least in the vicinity of La and Sr. At that time, among the heavy metals (which seemed to be the most logical next target – I'll confess I was averse to trying the magnetic rare earths), I strongly favored Bi and Tl (for their stable 3+ valence). As I recall, however, Wu and Chu still had a "fondness" for Ba-Pb-Bi-O and strongly suggested Pb. Because I knew that it sometimes forms a rather small 4+ ion in oxides, I was not particularly keen on trying it. Thus, I would claim only a minor contribution, at best, to the Pb formulas on that page. In any case, every composition on the list (with the marginal exception of the Pb compounds) was either formulated by me, strongly influenced by me, or, at a minimum, very much guided by my "average size argument." Run the numbers on the A-site ions in these formulas and I think you will agree.

If I'm referring to the wrong page, let me know (reply to my home address) and I'll take another shot at the question.

Jim

From: Ashburn, James
Sent: Thursday, June 10, 2010 10:34 AM
To: 'Pei-Herng Hor'
Subject: RE: document email

Pei,

Yes, I just have to get myself in a particular state of mind to read them. I will try to read them this weekend and send you comments by Sunday that might be helpful during the deposition.

Sorry, I started to pour over some of Chu's comments, but when my hands start to sweat, I just have to put it down for a while.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: June 11, 2010 at 12:58 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

H52 and H53 are calculations of weight percentage for formulas listed on H51. Are those formulas listed on H51 coming from you?

I dig out formulas that looked foreign to me (see attached). I know it can not all be yours because some of these are total nonsense. However please identify all the formulas that you have put down together Wu and Chu with your influences.

Was Ruling there when you guys worked on these formulas?

I may have more for you to identify. I need sometime to go through rest of the lab records.

Pei

From: Jim & Greta Ashburn <jashburn@knology.net>
To: Peiherng Hor <peiherng@sbcglobal.net>
Sent: Sat, June 12, 2010 1:56:07 PM
Subject: Re: Chu deposition

Pei,

Sorry, I was obviously thinking of the wrong page. The one to which I was referring is labelled "Chu Exhibit G" in my files. The page number is not visible. I'm looking at the page now, so I can comment more precisely on them.

Obviously, my Y1.2Ba0.8CuO4 turned attention from Ca and Sr back to Ba and specifically relatively high percentages of it. So, you will notice that the compositions here tend to center roughly on formulas with about 40% of the lanthanide (I'm including Sc and Y among them) replaced with a relatively large potentially 2+ ion (Ba and Pb here). I was reluctant to waste time with Sc, so I can only claim to have indirectly influenced that composition. Notice no Ca or Sr combinations and always at least a 20% substitution. I was somewhat averse to the rare earths, but Lu (being the least magnetic as a 3+) was a tolerable candidate. Since I knew Pb often formed a relatively small 4+ ion in some oxides, my preference was to try to substitute Bi or Tl for the lanthanide. Recall the description in my dissertation of the La1.8Hg0.2CuO4 sample I formulated and tested in Huntsville immediately prior to the YBCO material. This is what "opened the door" to further exploring the heavy metals. I recall Chu and Wu being big on Pb (apparently because of Ba-Pb-Bi-O), but this was yet another example of the degree to which they were oblivious to the importance of the crystal structure.

Anyway, between La1.8Hg0.2CuO4 and Y1.2Ba0.8CuO4 (both of my formulation), the compositions on this page were all marginally logical candidates, although I wasn't particularly excited about any of them. I had more influence on the compositions of page H51 (my copy shows only a backwards "H52" picked up from the other side of the page. The compositions of H51, H52, and H53 were my attempt at trying to probe exactly how critical the precise ionic size might be. Of course, I was operating under the premise that Y1.2Ba0.8CuO4 was still forming some kind of K2NiF4 phase, so it is not surprising that the results were disappointing. Unfortunately, with La1.8Hg0.2CuO4 and Y1.2Ba0.8CuO4, I really felt that I had expended all my best ideas.

By the way, page H56 has a rather interesting composition scribbled in the margin -- YB-1. If you back out the formula from the weights, it is consistent with the same YB-1 composition that appears in Exhibit C on the page that has 7-Jan a few lines down the first column. This was apparently the first YBCO composition tested in Houston. It is not surprising that with the indicated results ("I" indicating insulating), bracketing compositions were never made (at least not until after 29 January). However, bracketing formulas appear on the page labelled "15 January 1987" (I cannot see a page number in my copy), presumably mislabeled "SB-2" and "SB-3." From the naming patterns, it is clear that "YB- 2" and "YB-3" were probably intended. This is why I have no doubt that the (Y0.6Ba0.4)2CuO4 written in a different color ink above the SB-2 composition was added at a later date (after 29 January, much like Wu's doctoring of his notebooks). I would be very curious if Ruling would concede this. I suspect she might have been pressured to do it, so I have no ill will towards her. I just want to hear the truth on the matter. The composition is doubly curious since the "real YB-1" composition probably first appeared on one of the pages omitted from the exhibits.

The formulas of H51 to H54 are purely mine. They may look like nonsense, but there was a specific purpose in them. I think by the time I did these, we had already seen that deviating from x=0.4 in (Y1-xBax)2CuO4 caused the properties of the resulting samples to degrade (smaller volume fraction, etc.). Thus, I was convinced that the properties were EXTREMELY sensitive to the ionic size. These seemingly crazy compositions were my best shot of trying to test this hypothesis. The compositions on page H54 were also designed to test this hypothesis. Ultimately, my general belief was true (only relatively large metal ions could be used, as evidenced by more subsequent successes by others with Hg, Bi, and Tl), but I had vastly overestimated the sensitivity. Remember, at the time I really felt that I had used all my best ideas, so I was really stretching when I formulated the H51-H54 materials. By the way, as soon as Wu and I got back to Huntsville, we immediately started trying Bismuth, partly as a result of my urging and perhaps partly as a result of Wu's "fondness" for Ba-Pb-Bi-O. Believe it or not, we actually had an 80K Bi-Sr- Cu-O material (no Ca) before we heard of any other Bi announcements. However, before we could publish anything, it was upstaged by the Bi-Sr-Ca-Cu-O announcement.

By the way, if, in the deposition of Chu, you can get him to concede that he doesn't know where the H51-H53 compositions came from, then I will be free to divulge exactly how they were calculated. At that point, it should be clear to anyone that the story I tell in my dissertation could not have been made up after the fact, since very precise proof exists in, of all places, Ruling Meng's notebooks. If I'm not telling the truth, then it is clear that I really am crazy enough to have planted this in her notebooks only to unveil it 24 years later. The "problem" with my story is that it fits the facts (to three significant digits), unlike anything that has spilled from the mouths of Chu or Wu.

By the way, if folks want to try to rederive these formulas themselves, I encourage them to do so. There is only one path to the numbers, and it validates the account in my dissertation. So, in a way, I can't lose.

I hope this helps.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: June 12, 2010 at 4:50 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

One question you did not answer: did Ruling participate your discussions of making new formulas to test?

A further question, I think it is highly possible, If Chu makes false statements on the formulas listed on H51 - H54 in his deposition are you willing to come forward as my witness and present your calculation on these formulas? If yes, can I forward your reply to J?

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition
Date: June 12, 2010 at 8:38 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I think Ruling was present but I do not recall her being very actively involved in the discussions, at least not as active as Wu or Chu at that time.

Obviously with the recent "successes," there seemed to everyone to be more doors of opportunity. So, everyone seemed to have plenty of ideas. I was perhaps the most pessimistic of the bunch. Having been steadily trying lots of different compositions on my own the previous several weeks and being convinced of tight limitations on valence and ionic size (which has proven correct over the years), I felt like the list of remaining possibilities was beginning to grow short. Since Chu and Wu seemed to still be clinging to the possibility of interfacial multiphase superconductivity, I suppose they were more hopeful.

If Chu makes false statements concerning the H51-H54 pages, I will most **GLADLY** come to Houston and present my calculations (and at my own expense). And again, you may notify your attorney of this.

Sincerely,

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: June 13, 2010 at 11:05 AM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

Thank you for willing to testify against Chu if he makes false statements concerning the H51-H54 pages.I appreciate your kind offer but I believe I should at least cover the expenses.

Can you tell me if any of the formulas listed on page H-50 was also one of the formula considered during the discussion. If so, is there a "sure" way to prove that it was added in later. Noted that it was dated on January 29 so, presumably, it had been written down "before" you and Wu arrived at Houston.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition
Date: June 13, 2010 at 5:16 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I think it is pretty trivial to prove that the "29-" was added later.

Assume that Ruling (assuming this is all her handwriting) arrived at the top of this page on 29 January. What did she do?

1) Write "29 January 1987," allowing room to add "-30" later.

2) Write "29-30 January 1987," anticipating that the activities associated with the page would require precisely two days.

3) Write nothing, waiting until she determined what period of time was required for the activities associated with the page.

#1 is impossible to justify since it is clear from all the other pages in her notebook that she did not allow additional space to add a range of dates later.

#2 would seem odd, to say the least. And, if I'm not mistaken, this may be the only example where a span of dates appears like this on her notebook pages. Should we be surprised that the only example involves 29 January?

#3 would simply call into question any of the dates written on any of the pages, since the dates would by necessity be added after the fact.

The most logical explanation is "none of the above" -- "30 January 1987" was initially written at the top of the page, the date I formulated these materials (and I look forward to deriving them in court), and the "29-" was prepended later.

My sons were looking over my shoulder and pointed out that the "9" in "29" doesn't match the nine in "1987" and the "2" in "29" doesn't match the rest of the "2's" on the page. It seems it's hard to say how many hands have "enhanced" this page since the day it was first written (30 January).

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition (Part #2)
Date: June 13, 2010 at 5:31 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

Of course I didn't state clearly that the easiest way to prove this is to give everyone an opportunity to rederive these formulas. Then I will happily demonstrate how to derive them. Since I didn't arrive in Houston until 30 January, that would leave Chu hard-pressed to explain how he got them. And, in any case, it raises questions about why a graduate student in Huntsville would be phoning in compositions for the Houston team to make. Why would the Houston team be making samples of formulated by a 23 year old grad student from a little school in Alabama when you had Paul Chu to direct you, particularly in the wake of the YBCO discovery? Surely there was plenty to do.

Forgive my sarcasm. Sometimes I do let my emotions get the best of me. Sometimes it's not easy picking the scabs off old scars, but please do not hesitate to ask me anything. This may be my best and only chance to tell my story.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition (Part #2)
Date: June 13, 2010 at 6:48 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

you got a great point. This is exactly what I was thinking too. Even if Chu admitted that all the formulas list on page H51 came from you then he will still have a hard time to explain why he "needed" a 23 years old grad student to tell him how to find new high temperature superconductors. It seems to me that independent to Chu's answer to this question that you will have to come to Houston. Let me ask J tomorrow see what he will say.

By the way, Paul Chu did not real "direct" any one of us at all. He was busy running around to broadcast all the works done by others that, of course, including yours.

Pei

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu deposition
Date: June 13, 2010 at 6:56 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I was asking about page H50 not H51. Can you take a look at H50?

By the way, your analysis concerning the date on page H51 is completely logical to me. It makes sense now. I have been confused by the date and the formulas listed on H51 for a long time.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition (Part #2)
Date: June 13, 2010 at 9:45 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

Concerning your last point, I never really had any doubts about that. I'm no genius, but I can tell the difference between a scientist and a politician.

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu deposition
Date: June 13, 2010 at 9:52 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

Sorry, some of the page numbers are not clear in my copy.

Now I see. The only compositions that might have been written on 29 January would have been the first four, obviously after the phone call(s) from Huntsville. I presume these might have been the ones to which Chu made reference that were made in Houston after our call but didn't work. My guess is that their failure was a consequence of Wu not thinking to mention the relatively low processing temperature we used (one of the two serendipitous factors responsible for the discovery).

The others (#5 down) were done after our arrival. However, I would not consider the date necessarily fraudulent. It simply indicates the date that the work was started on the page. One would simply assume that the work could have extended up to and including the date at the top of the next page, which should have read 30 January (and did originally).

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Quick Question
Date: October 15, 2011 at 11:17 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I have misplaced RuLing's email address. With the 25th anniversary coming up, I would like to be able to contact you and her quickly. Would you be so kind as to send me her address again? I will continue to be respectful of her time.

One last item: In an email from you to me in February 2010, you acknowledged me with this: "The YBCO disaster is your invention. I can not take credit for it. I just happen to agree that, sadly, the whole YBCO thing has turned into such a disaster due to a handful of people's selfishness and greediness."

Does RuLing also believe my story? I ask this because I am hoping to prompt someone in the press to do one more story on the discovery -- the true story. I am prepared to play all of my cards, and I will make a very compelling case. Before going into this, it would be helpful to know if Ruling would support my account. Except for her mistaken claim of telling Wu to seek yttrium at NASA (this is easily proven to be false both via documentation and the testimony of several individuals), her account is largely accurate (although occasionally innocently misleading).

Thank You,

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Quick Question
Date: October 17, 2011 at 10:23 PM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: rmeng8899@hotmail.com

Pei,

I thought I had made it very clear about the fact that using yttrium was not the key to discovery. If you wish, I can provide several papers describing groups who tried yttrium and failed. One of those groups was Houston. Chu wrote several papers (eventually) attesting to that fact.

I don't doubt that you mentioned yttrium. I don't recall witnessing it, but I think it would be highly improbable that you didn't. I you recall it, then that is good enough for me. The problem is that I can list others whom I specifically recall mentioning yttrium during that period. Most of them do not claim to have been responsible for the discovery. It is safe to say that anyone who has had high school chemistry could have figured out that yttrium was at least a candidate (albeit a questionable one). There are only 91 elements available, and it's pretty easy to rule out most of them for various reasons (noble gases, radioactive, don't form stable oxides, high vapor pressures/difficult processing, ferromagnetic -- this last one a bad call in hindsight). There just weren't that many good candidates left and, besides, high school chemistry students know that elements in the same column of the periodic table have similar properties.

Ruling's story of asking Wu to obtain yttrium has several holes in it. She states that she did so while we were in Houston on 3-4 January because she thought that we could get it more quickly. She states that it would require two weeks to obtain it.

This assertion is difficult to believe. Note the page marked RLM1172 in your copies of Ruling's notebook. Note the YBCO samples made in early January but after the 7 January date in the middle of the page. Clearly Houston had both yttrium and lutetium early in the month. Note the test results -- insulating. Houston quickly abandoned these compositions for quite some time until the fateful 29 January phone call, after which Chu states in several papers that the Houston team was still unable to make an yttrium sample superconduct. Clearly the Houston team's "invention of YBCO" was woefully incomplete at a time after which Chu already acknowledges that Huntsville had made the discovery. Aside from Chu's claims of mentioning yttrium (it would be highly unlikely if he hadn't mentioned it, too), the bulk of his details from those later papers (ca. mid 1990's) are correct.

Ruling might have done what she said, but it clearly did not register with Wu. He did not attempt to obtain yttrium oxide until around the beginning of the fourth week of January. Even after obtaining it, it sat on the shelf for almost a week before another test (details forthcoming) prompted the making my $Y_{1.2}Ba_{0.8}CuO_4$ composition. There were several witnesses to the fact that I asked Wu repeatedly to get yttrium oxide. I can provide you contact information for the following individuals if you wish to speak with them.
They have absolutely no interest in the matter except that they were witnesses to many of the events in Huntsville:

1. Jones Hamilton (student at the time):
   I have a letter from him describing Wu snickering at the idea of trying yttrium. You could also speak with him, if you wish.
2. Daniel Shultz (student at the time):
   I consulted Daniel about finding yttrium because of his background in ceramic engineering (BS, Georgia Tech, ca. 1986). He discussed with me yttria-stabilized zirconia and the like and suggested I try a ceramist. The only ceramist I knew was Ed Ethridge at NASA Space Science's lab. So, I asked Wu (at least twice) to pick some up while he was out there running Hall Effect measurements in the lab of Frank Szofran. I have substantial evidence corroborating all of these details
   -- my connection with Daniel
   -- the fact that he was a student at UAH at the time
   -- his background in ceramic engineering
   -- my connection with Space Sciences lab and knowledge of Ed Ethridge
   -- Wu's Hall Effect measurements during that period in the lab of Frank Szofran's at Space Sciences
   These kinds of details are not easily fabricated, especially since all of these are real people and places with whom you can speak. As I've mentioned before -- reality lends itself to A LOT OF DETAIL.
3. C. J. Torng
4. M. K. Wu (he might deny it now, but I can offer you testimony from him about 2 months after the discovery that corroborates my assertion).
5. Me

But again, the pursuit of yttrium is still IRRELEVANT. Knowing how to use it was the key.

You state that Wu asked me to do it. I have evidence in Wu's own words that proves I asked him -- REPEATEDLY. I still have to speak to a lawyer before I can release it. If you come to Huntsville, I will gladly show it to you. If I'm ever in

Houston, I'll bring it with me. In the meantime, I cannot release it until I have consulted legal counsel.

Concerning your description of YBCO as a discovery and not an invention, I assert that the formulation of $Y1.2Ba0.8CuO4$ is an invention -- specifically, my invention. I will soon release the remaining details of the redacted document I provided you. It will confirm that I was formulating those samples (from Ruling's 30 January page and the pages that followed) using formulas identical to those I documented 21 years ago as yielding the $Y1.2Ba0.8CuO4$ composition (simple calculations Wu references in a fairly recent article I have attached to this email).

Chu claims to have formulated the 30 January compositions, but gives a pathetic explanation for the 3-digit precision. No one can reproduce those compositions but me. On that 30 January (someone added "29-" to the top of that first page later -- more notebook doctoring), we were all busily making samples and running tests, helping compose what would soon become the most cited experimental physics paper in the history of PRL, and were tired from working ridiculously long hours. Yet somehow the Houston team found time to work on compositions formulated by a first-year grad student from a little school in north Alabama. The fact that I will show you precisely how it connects to the $Y1.2Ba0.8CuO4$ composition leaves no alternative explanations -- Wu told Chu roughly how I had formulated $Y1.2Ba0.8CuO4$. Those ideas became the basis (either loosely or specifically) for all of the new compositions documented over the few days that followed the YBCO discovery.

Wu tried to take credit for what I am describing by doctoring his lab notebook. Attached is the doctored page. It reads "match volume." The details about what this means are forthcoming. Oh, and the evidence on Wu I mentioned above also includes his confession that the page was a fabrication -- added to his notebook AFTER THE DISCOVERY. If you speak with him about it, you should highly encourage him not to deny it.

I harbor no ill-will towards you or Ruling, and it would mean more than you can know if you will stand with me on this. Your memory and the memory of Ruling are largely accurate. They miss only on the point that you assume that some of your actions were tied to the invention and the discovery. Your story and that of Ruling hinge entirely on a passing mention of yttrium. My story, on the other hand, has three-digit specific compositions and other endless details that are forever seared into my memory. I cannot escape them. No matter how hard I try, it will forever be hopeless for me to convince myself that I did not invent $Y1.2Ba0.8CuO4$.

I have no doubt that both of you were coerced into supporting Chu. I have always believed this. Ruling's confession of perjury in her affidavit only confirmed what I already knew.

I am sorry for what you and Ruling endured. I have no doubt that working for Chu during that time was agonizing -- a nightmare.

However, if I prompt someone to do a story on this, I may ask them to contact you and Ruling. You can choose to be with me or against me. If you stand with me, I believe the truth will finally be known. I believed you in your quest for credit on the other rare earth copper oxides. I tried very hard to help you. I did so based upon the combination of Chu's lack of credibility with me and your frankness with me. I believe you are one who pursues the truth -- a scientist in the truest sense.

For me, this has nothing to do with money -- I will sue no one -- the courts don't know how to find the truth. This has nothing to do with career -- I do not work in even a remotely-related field. It has nothing to do with recognition -- which I thoroughly despise. This is what it concerns...

Just a moment ago, my daughter Kathryn (age 11) just caught me at the keyboard to tell me about something exciting she did at school today. Sadly, because of all of the superconductor crap on my mind, I had a difficult time giving her my attention. In fact, this mess has stolen yet another weekend from me enjoying time with my kids. They have watched their dad pounding furiously at the keyboard all weekend doing something about "his invention." My youngest son came in the home office a couple of times over the weekend to rub my back as I sat at the keyboard. He knew I wasn't very happy, and it was his way of consoling me.

If I did not invent YBCO and yet told my wife and kids that I did, then I deserve to rot in hell, as does any man who would lie to his family. My wife has seen all the tears and sat up with me during more sleepless nights than I can count. She has seen me scream at the top of my lungs. She has seen me curl up in a ball on the floor and sob like a baby. YBCO is a curse.

One last thing: I don't have a single dated document attesting to my formulation of $Y1.2Ba0.8CuO4$. I still have my pocket calendar from January of 1987. It has all kinds of personal things in it unrelated to my work, but the only thing work-related is one line on one date that reads "make more samples." That's it -- nothing tying $Y1.2Ba0.8CuO4$ to a specific date except for my word and the fact that someone came up with it before 29 January.

And nothing I offered into the patent case concerning the timing of the my invention had a date on it. Don't you think that if I was going to make all this up -- if I'm going to go to the trouble of fabricating this big story -- that I would at least put a date on something (like Wu did)? If I was going to lie about everything else, what possible reason would I have for not putting a date on something? If I am a liar, then I'm one of the most pathetically stupid liars to ever walk the planet.

But my conscience is clean.

I do not wish to hurt anyone. I'm only trying to stop myself from hurting, but in doing so I may cause some pain to others. That is not my wish, but it is my dilemma.

I am pouring out my heart to you. Will you please help me escape this nightmare and close this chapter in my life once and for all?

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Quick Question
Date: October 17, 2011 at 12:45 PM
To: Jim & Greta Ashburn jashburn@knology.net
Cc: rmeng8899@hotmail.com

Jim,

You will find Ruling's email address is Ruling Meng <rmeng8899@hotmail.com>

I am afraid that you had misunderstood what I meant. I acknowledged that the term "YBCO disaster" is your invention since I totally agree that the whole YBCO thing is indeed a disaster. As far as the YBCO superconductor itself, I view it as a scientific discovery not an invention. I have no reason not to believe every word that you said concerning what you had done. What is not clear to me is Wu's role in Alabama's research and what had he done after he agreed to work with us on Yttrium substitution. According to Wu, he asked you to do Yttrium substitution.

The discussion of Yttrium substitution in my office is a simple fact and Ruling did ask Wu to look for Yttrium at NASA.

You need to contact Ruling about her view. I cc this email to Ruling so she knows you will contact her.

I hope that you can discuss with me if you want to quote me. There should not be any more misunderstanding among us. It is time we should talk to each other.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Quick Question (One More Thing)
Date: October 18, 2011 at 12:08 AM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

Why did Ruling expect NASA to be more likely to have Y2O3 than the UAH chemistry stockroom? Wouldn't the chemistry stockroom be the logical first place to start? They had La2O3 when we went looking for it. They had BaCO3. They had SrCO3. They had CuO. They had CaO and CaCO3 and every other compound we needed prior to Y2O3. The Space Sciences lab didn't have a chemistry stockroom (at least not to my knowledge). Anything we would seek there would be a difficult and hit-and-miss search unless you knew where to look and whom to ask.

Perhaps NASA was mentioned by Ruling because we (Huntsville) told you guys that we had already checked our chemistry stockroom. But since we were in Houston when you mentioned yttrium, that would mean that we had already sought yttrium before we arrived in Houston and before you suggested it.

Yes, I checked the chemistry stockroom first. So what are the odds that Ruling would suggest that we should try NASA, we would try the UAH chemistry stockroom that up to the point had everything else we needed, and (amazingly) the stockroom did not have Y2O3. I have some of those old sample bottles and documentation on some of the others we used. Prior to Y2O3, they were all "student- grade" chemicals, nothing like what Ed Ethridge provided us. The purity of the Y2O3 we obtained (99.9994% if I recall correctly, I'm sure Ed could attest to the purity of his materials) and Daniel's insistence that a ceramist would not want his Y2O3 tainted with transition metals (I'm assuming he will recall this, he definitely won't suggest that it couldn't have happened) was part of the reason I was reluctant to crack the brand-new can -- thus it sat on the shelf for several days until one of our 28 January tests prompted me to open it. We had always been content to use student-grade chemicals (our SrCO3 was of extremely low purity -- this is documented in a paper I published years ago). If we were content to do so, then surely we would check our stockroom first. So, when did we check it for Y2O3?

2) Before coming to Huntsville and before you told us to try yttrium but early enough so that we could inform Ruling that we found none there -- so that she could suggest NASA instead? Or...

3) After returning to Huntsville and (again amazingly) the stockroom had none and Ruling's suggestion to try NASA was all but psychic?

Please understand that I am not trying to continually embarrass you or Ruling. But you put me in a very difficult situation sometimes. The problem is that all these claims of who said yttrium first (whether yours, Ruling's, Chu's, or Wu's) are stories with lots of holes and few, if any, meaningful details -- the details to which reality lends itself.

I don't doubt your sincerity or that of Ruling. But claiming to be the first to mention yttrium means being able to describe one's contribution to the discovery in one sentence (not to mention a contribution that is easily shown to be meaningless -- see attachments plus Chu's later papers recounting the discovery). I cannot describe my contributions in nearly so few words.

If there is anything that I have offered you that is inconsistent on a single detail, please challenge me on it. I have challenged parts of your story. You have received those challenges in a very polite, mature, accommodating way. I cannot thank you enough that you are willing to listen. I am grateful that you have not taken offense to my words. I think you understand that I am truly speaking what I believe to be true. I fear that I might drive you to be an adversary, but I think we both believe that the truth will stand up to any challenges (except perhaps in our US legal system) -- at least among intelligent individuals.

Please feel free to challenge me on any aspect of my story. You will certainly not offend me. Despite all of the emails we have exchanged, you have offered questions to me, but I don't recall you ever suggesting that something I said might be false. You have been respectful of me beyond what I deserve. That is part of the reason I believe that you are a person of integrity. If there is anything I have said that you doubt, please don't hesitate to ask me tough questions.

By the way, we obtained Y2O3 on 23 January. The can was opened on 28 January. I published these facts many, many years ago. My story (unlike Chu's) does not change. It is the same now that it was way back then.

Please ask yourself if it is possible that I am telling you the truth. Then ask yourself if it would be so bad if you stood with that truth. Think about it. Please.

Sincerely,

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Another Quick Question
Date: October 18, 2011 at 6:12 AM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: rmeng8899@hotmail.com

Pei,

I've slept one hour tonight (which is only 3 hours less that what I've achieved for most of the last week). Hopefully this won't be the death of me.

Did you or Meng ever see the US News and World Report article from May 1987?

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Another Quick Question
Date: October 18, 2011 at 10:14 AM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I will go through your two previous emails with you. It is too heavy for me to read them now. Truth will eventually comes out if we can talk to each other. Email communication can create unfortunate misunderstanding.

I also hope you will not get too excited and make sure that you will have enough sleep. It is not worthy. The whole YBCO disaster has placed a heavy toll on my health.

I become aware of the report pretty late around 2006 and, if you can recall, it prompted me to contact you in 2006.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Another Quick Question
Date: October 19, 2011 at 6:04 AM
To: Peiherng Hor peiherng@sbcglobal.net
Cc: rmeng8899@hotmail.com

Pei,

That's fine. I understand that it's very hard sometimes. Just a couple more items...

1) The first time anyone "suggested" to me the idea of trying yttrium was in a paper among the huge stack Wu gave me in early/mid December of just about everything ever been written on copper oxides up until that time. I've been sifting through my many boxes trying to find my old copy -- I'll need to make another pass. However, as I've told you, my memory of these things is terribly vivid. I didn't recall the title and I wasn't exactly sure if it was a Michel/Raveau paper or one by Sleight and crew at Watson, but I was pretty sure the first author was Er-Rakho. I don't know who he was, but his name stuck in my head. After about an hour of web-searching (I could recall how to spell Er-Rakho but I was close enough for google), I found this one (see below). I'm about 99% sure it's the right one. If it's not, it's probably one of a couple related to the same body of work. Nevertheless, I knew that it existed, I was pretty confident I would find a reference somewhere on the web, and I did. I don't have access to anything but the abstract, but fortunately it makes specific mention of the yttrium substitution. The wording is poor -- it should read "lanthanum WITH yttrium" instead of "lanthanum FOR yttrium," but I think you can figure it out from the context, especially if you can access the full text of the paper. If you can, I think you find something about yttrium making it easier on the X-ray diffraction pattern to distinguish which sites the in the lattice the lanthanide occupied and which ones barium occupied. If you don't find that, then I'm pretty sure that there is another paper related to this one that does.

The bottom line is that these guys suggested the yttrium substitution to me (through this paper) at least three weeks before you claim to have done so. Again, I'm sorry. But the truth is simply what it is.

(The bold added by me.)

A series of oxygen-defect perovskites containing CuI and CuIII: The oxides **La3−xLnxBa3 [CuII5−2y CuIII1+2y] O14+y**, L. Er-Rakho, C. Michel, J. Provost, B. Raveau, Laboratoire de Cristallographie et Chimie du Solide associé au CNRS, L.A. 251, Institut des Sciences de la Matière et du Rayonnement, Université de Caen, Esplanade de la Paix, 14032, Caen Cédex, France, Received 29 May 1980; revised 18 August 1980; Available online 11 December 2003.

Abstract: A series of oxygen-defect perovskites, containing CuI and CuIII, La3Ba3 [CuII5−2y CuIII1+2y] O14+y, has been synthesized at 1000°C, for 0.05 ≤ y ≤ 0.43. The substitution of lanthanum for **yttrium** and lanthanides has been studied. These oxides are tetragonal: $a = a_p \cdot 2^{1/2}$ and c = 3ap. The structural study of La3Ba3 Cu6O14.10 shows that oxygen vacancies are ordered, involving for copper three sorts of coordination: square, pyramidal (4 + 1), and distorted octahedral (4 + 2). The distribution of CuIII, as well as the lanthanide ions on the different sites, is discussed.

Oh, and here's a link: http://www.sciencedirect.com/science/article/pii/0022459681900803.

Anyway, I thought you might find it interesting, especially since a version of their composition with two thirds of the lanthanum replaced with yttrium would yield a result frightfully close to the Y123 -- ironic. This is just a tiny example of some of the information I have tended to hold back. Once I put this kind of information out there for other members of the Huntsville or Houston team, there is always the risk that someone else will claim it as their own (I know this because it's already happened way too many times). For example, you could now claim that you recall seeing this and that you gave me the paper. However, so far you have shown yourself trustworthy (given that I do believe you were coerced many years ago), and I'm slowly trying to trust you with these. Forgive me, but regaining that ability to trust is not coming easy.

I also believe that Ruling did not "recall" telling Wu to "try NASA" until she was "reminded" by reading one of the published references about it. I think it's an honest mistake. It certainly seems like it could have happened that way, but I am very much inclined to doubt it. Had I not involved so many people in the search for yttrium then I would be more inclined to believe Ruling's claim -- there had to be a cause somewhere. However, since so many people recall what happened in Huntsville (again, I would encourage you to speak with them if you doubt me -- I can track them down), I simply have no compelling reason to believe that coincidentally Ruling told Wu this two weeks before I did, which brings me to this...

2) I spoke to my attorney today, and he informed me that my audio recording of my conversation with Wu from the spring of 1987 is legal in Alabama. So, I can at least discuss its existence with you. There may still be issues with me taking or sending it to another state (where the law could be different). In short, Wu's concessions include: a) he doctored his lab notebook to claim credit for my "volume matching," as he calls it. b) he admits that I asked him to get yttrium and not the

reverse. This latter fact kind of blows holes all in Ruling's claim of doing the same, reducing to, at best, a remarkable coincidence. If anything, it confirms that even if she did it, it was not the cause of the eventual yttrium search. Once I've established Texas law on the matter, I can send you a snippet. The digitized file is much too large to email.

Once I get everything else together, I will show you how the 3-digit compositions are derived from my "volume matching" idea -- what Wu felt was so significant that he doctored his notebook to claim it -- and then how the idea was directly responsible for Y1.2Ba0.8CuO4. I've given you lots of clues, but I've still left out enough details that it would be somewhat difficult for you to reproduce the numbers. But even if you did, it only confirms that I've always been telling the truth.

I would like you and Ruling to talk about all this and decide where you will stand when you see these last pieces of evidence.

Again, I have no choice but to believe that I invented Y1.2Ba0.8CuO4. I know it probably seems like I am pounding you with evidence, and the weightiest evidence is still to come. But what else am I to do? I am determined to close the book on all of this before 29 January of next year. In my mind, there is always the chance that you and Ruling will violate my trust, but I seem to have little choice but to trust you.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Another Quick Question
Date: October 19, 2011 at 11:38 AM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

Very good. You seem to be calm now. Three things,

1. Concerning "audio recording of your conversation with Wu": If the content is what you say than it will be an excellent evidence to convince me that Wu did not play a role in formulating the composition and he dropped the ball and did not take our discussion in Houston seriously.

2. By the way, I do not like what you had done to Wu... secretly recording your conversation with your advisor. The truth will still surface with or without this recoding.

3. I never doubt that the three-digit composition is coming from Huntsville since I had never put down a formula with three digits in composition.

4. Concerning "given that I do believe you were coerced many years ago".

5. I thank you for your trust but I have to point out that "no one" can coerce me to do anything that is either illegal or scientifically wrong. Remember I do not know all the things happened in the patent lawsuit. I learned about it in early 2006. Read my 2006 affidavit.

My cell number is 713-5502845 and home phone number is 713-7283734. Feel free to call anytime to talk to me.

Pei

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Another Quick Question
Date: October 19, 2011 at 11:58 AM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I believe I made a mistake here. I thought I read the article but now i just realized it was the Science article that prompted to contact you.

You need to email the US News and World Report article from May 1987 to me so I can tell if I read it or not.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Another Quick Question
Date: October 19, 2011 at 10:50 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

You are right concerning the recording. It was something I hated doing -- I almost threw up after I did it. I have never done it to anyone else, nor have I ever even considered doing so. Not to make excuses, but I was desperate, confused, and frightened. I played it only one time -- to convince one person at UAH that I was telling the truth. Since that time, I digitized it and then stored it away. No one else has ever heard it. It quite literally makes me sick to my stomach to tell anyone that I have it, because it does seem to reflect on my character. Your response is a perfect example of that -- and it is justified. We have been exchanging emails for five years now, I think. You see how long it has taken and how reluctant I was to even mention it.

"Coerce" was a poor choice of words to apply to you. I think Ruling was coerced. Not so much to say what was untrue but certainly to leave out what she knew was true by largely erasing us (Huntsville) from the story. Her words were (mostly) literally true, but the end result was still very deceptive. True, to my knowledge you have never done anything illegal, unethical, or immoral. You have been very straight with me, and far more respectful of me than I have been of you. I have been harsh and tactless at times. I hope you will bear with me, as this whole thing does not bring out the best in me.

My life since I met my wife has been nothing but wonderful. She and my five children are very loving and giving people. For years they have gone down to New Orleans to work helping people rebuild their homes. They all devote many hours every year serving others. Maybe some day I can be worthy of having them.

I will call you as soon as some things settle down, as I would like you to get to know me when I'm not thinking about all of this mess. I would much rather talk about my family than all of this other stuff. And if you are ever in Huntsville, I would love to have you as my guest.

I must tell you one more thing: I have two objectives in all of this: 1) To reveal the truth, and 2) to make friends of my enemies. I fear that the two objectives are mutually exclusive, at least with regard to Chu and Wu. Obviously, you are free to tell Wu of the recording. I would certainly be grateful it if you would not. I still have at least some hope that he and I can be fully reconciled one day.

I also hate to think that my very frank words will hurt Ruling's impressions of me. No doubt my emails seem very cold, perhaps because I feel so lifeless when I am writing them. I pray that Ruling will be patient with me as I seek to be sympathetic with her.

Your Friend (if you would regard me so),

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Another Quick Question
Date: October 20, 2011 at 12:19 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

Please see my responses in your email. I need your straight answer all my questions.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
To: Peiherng Hor peiherng@sbcglobal.net
Sent: Wed, October 19, 2011 10:50:55 PM
Subject: Re: Another Quick Question

Pei, You are right concerning the recording. It was something I hated doing -- I almost threw up after I did it. I have never done it to anyone else, nor have I ever even considered doing so. Not to make excuses, but I was desperate, confused, and frightened. I played it only one time -- to convince one person at UAH that I was telling the truth. Since that time, I digitized it and then stored it away. No one else has ever heard it. It quite literally makes me sick to my stomach to tell anyone that I have it, because it does seem to reflect on my character. Your response is a perfect example of that -- and it is justified. We have been exchanging emails for five years now, I think. You see how long it has taken and how reluctant I was to even mention it.

--- I remember you told me that you were happy and relieved when Alabama team was listed as the leading group in the YBCO paper. Then why you were still so desperate, confused and frighten? When did you record this conversation.? ---

"Coerce" was a poor choice of words to apply to you. I think Ruling was coerced. Not so much to say what was untrue but certainly to leave out what she knew was true by largely erasing us (Huntsville) from the story. Her words were (mostly) literally true,---I wish it is as simple as you think.--- but the end result was still very deceptive. True, to my knowledge you have never done anything illegal, unethical, or immoral. You have been very straight with me, and far more respectful of me than I have been of you. I have been harsh and tactless at times. I hope you will bear with me, as this whole thing does not bring out the best in me. --- Do not worry about this, I understand.---

My life since I met my wife has been nothing but wonderful. She and my five children are very loving and giving people. For years they have gone down to New Orleans to work helping people rebuild their homes. They all devote many hours every year serving others. Maybe some day I can be worthy of having them. --- You should not have any doubt about that. You are worthy of having them just like they are worthy of having you. The key is you need to get out of the YBCO nightmare as soon as possible. ---

I will call you as soon as some things settle down, as I would like you to get to know me when I'm not thinking about all of this mess. I would much rather talk about my family than all of this other stuff. And if you are ever in Huntsville, I would love to have you as my guest.--- I will be glad to be your guest.---

I must tell you one more thing: I have two objectives in all of this: 1) To reveal the truth,
--- I am also coming in for the truth because "only truth can set us free." and it is pretty clear to me what truth is.--- and 2) to make friends of my enemies. --- What will you do to achieve this objective?--- I fear that the two objectives are mutually exclusive, at least with regard to Chu and Wu. Obviously, you are free to tell Wu of the recording. --- It has never come across my mind to do so..--- I would certainly be grateful it if you would not. I still have at least some hope that he and I can be fully reconciled one day. -- Again, specifically, what will you do to achieve this goal?---

I also hate to think that my very frank words will hurt Ruling's impressions of me. No doubt my emails seem very cold, perhaps because I feel so lifeless when I am writing them. I pray that Ruling will be patient with me as I seek to be sympathetic with her.

Your Friend (if you would regard me so),

---I regard you as a trust worthy person otherwise I will not continue communicating with you. However I can not be your friend in the YBCO nightmare. I need to maintain my independence while investigating the truth. In this sense I am no one's friend. Outside the YBCO nightmare, yes, I do regards you as a friend but it has to wait until we all weak up from this nightmare.---

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Another Quick Question
Date: October 21, 2011 at 10:39 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I tried to call you this evening. I may try again tomorrow.

I was relieved when we were listed first on the paper because I knew that was the right thing. Unfortunately, it seemed to make little difference. Chu cleverly listed himself last and, eventually, your Dean of Science and others began to tout Chu's "great humility."

I became frightened after Wu began to change the story, not only ignoring my role but actually making me out to be responsible for delaying the discovery (publicly and jokingly). This was the opposite of the truth -- it was Wu I asked at least twice to get Y2O3 while he was making trips to the Space Sciences lab to run Hall Effect measurements on some La-Sr-Cu-O samples. I even have some of the old measurements he did -- dated, I believe. And, as I mentioned, at least three other individuals were witness to some of this. I believe Torng even recalled Wu instructing both of us to stop trying new compositions and focus on "real science," sometime in mid- January, I think. Fortunately, Wu tolerated me tinkering on my own time. I enlisted the help of a couple of friends, and we even did much of our work in some of the student labs. In addition to the others I have already mentioned, other students by the name of Tony Xidis and Jason Kinser were also involved with my attempts to make new materials.

Right after a particularly embarrassing presentation Wu made on campus (I think around mid-March), I was furious, devastated, and in a panic. How could I be a scientist and fear discovering things? My entire future was in jeopardy. As you may know, after I finished my Ph. D., I turned down a post-doc opportunity and left science altogether. Science was my first love, and science seemed to have betrayed me.

Concerning "I wish it is as simple as you think," I have no doubt that there is a lot I don't know about what was going on in Houston and why. Some day when I'm up for it, I would like to hear the story.

Concerning "making friends of my enemies," I don't know how to accomplish this. It seems likely that Wu and Chu don't care. They seem to have what they wanted. There have been faint indicators of hope (I can detail them sometime, if you like), but I'm not very optimistic.

Concerning the YBCO matters, I appreciate your desire to be objective. I will soon provide you the information I have withheld. Do not hesitate to ask me difficult questions. I welcome them.

Sincerely,

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Another Quick Question
Date: October 22, 2011 at 11:38 AM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I appreciate your straight response. Can you tell me exactly when did you record the conversation? This date should be crystal clear to you.

I ask these questions because I am forcing you to:

1. set your objectives straight so when you move forward you know exactly what you are doing.

2. Obviously your objectives 1 and 2 have some conflict but if you place them on equal weight then your answer is not good enough. Also, if either one weight heavier than the other then you do not have two objectives.

3. facing yourself so that you can carefully re-examine the origin of all your emotion. This way will give you a final chance to justify action based not only on what happened back then but also based on your belief now.

The truth is already clear to me and you do not have to show anything more.

Sorry that I missed your call last night. We went out with friends for dinner. Call again at your convenience. I just want to have a chat with you.

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: A Thank You and Two Requests
Date: October 24, 2011 at 9:00 AM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

I want to thank you again for taking so much time with me, being so willing to listen, and being so respectful of me in very way. I have two requests of you. I hope they are not burdensome:

1) I would like contact information for C. Y. Huang. I feel a great need to try to recover the original samples -- or at least the containers if he has them. If you happen to speak with him, I would appreciate it if you would make an appeal on my behalf.

I am still entertaining the idea of providing information to Science Magazine, and after speaking with you, I think I have a much better idea of how to best do it -- almost the opposite in every way of what I had previously considered. And I still owe M. K. a phone call.

Thanks again, and I wish the very best for you and your family.

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: A Thank You and Two Requests
Date: October 24, 2011 at 12:39 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

No problem, feel free to call whenever you feel like to talk to me. Concerning your two requests,

1.) I am sorry that it will be too heavy a workload for me. I am afraid that I would not be able to do it, at least not for now.

[redacted]

2) I will try to get the contact information of C.Y. Huang for you. I have lost contact with CY for almost 15+ years. I will try to locate and talk to him when I go to Taiwan next summer.

Yes, talk to M.K. first. Hopefully you can resolve your grievance with him and drop the whole thing once for all.

Best wishes, Pei

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu's deposition
Date: October 25, 2011 at 9:38 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I talked to my attorney and it seems that Chu's deposition is confidential under protective order. I am surprised by this because we should have filed it to court to make it public.

One thing you can do is to go to the court and check. Your attorney can teach you how to do it or check it for you.

Best regards,

Pei

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu's deposition
Date: October 26, 2011 at 9:16 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

[redacted]

I contacted Wu by email. Hopefully he & I will speak soon. Finding CY is proving to be more difficult.

Thanks Again,

Jim

From: Jim & Greta Ashburn jashburn@knology.net
Subject: Re: Chu's deposition
Date: October 27, 2011 at 6:01 PM
To: Peiherng Hor peiherng@sbcglobal.net

Pei,

Thanks. That's the main info I need.

There is one last favor to ask of you. Would you please speak to Ruling and help her understand that I am (and always have been) telling the truth? It would mean a lot to me to know that she believes me, and that I very much know the pain she endured through all of this.

Sincerely,

Jim

From: Peiherng Hor peiherng@sbcglobal.net
Subject: Re: Chu's deposition
Date: October 27, 2011 at 11:32 PM
To: Jim & Greta Ashburn jashburn@knology.net

Jim,

I had already told her that long time ago. I told her that from your calculation and the three digit formulas that showed up in our lab notebook I believe you are telling the truth. She believes that you can up with the composition. It is up to you to prove that Wu has nothing to do with yttrium substitution...I did not tell her your secret recording.

Pei