

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

PEI-HERNG HOR,

Plaintiff,

v.

CHING-WU “PAUL” CHU,

Defendant.

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CIVIL ACTION NO. 4:08-cv-03584

JURY TRIAL DEMANDED

**DEFENDANT CHING-WU “PAUL” CHU’S RESPONSES TO
PLAINTIFF’S SECOND SET OF INTERROGATORIES**

Pursuant to Rules 26 and 33 of the Federal Rules of Civil Procedure, Defendant Ching-Wu “Paul” Chu (“Dr. Chu” or “Defendant”) serves these Objections and Responses to Plaintiff Pei-Herng Hor’s (“Dr. Hor” or “Plaintiff”) Second Set of Interrogatories Nos. 15-23.

GENERAL OBJECTIONS

1. Defendant objects to these Interrogatories insofar as they seek information that is not relevant to the subject matter involved in the pending action and are not reasonably calculated to lead to the discovery of admissible evidence.

2. Defendant objects to the these Interrogatories insofar as they seek to obtain information that is privileged from discovery pursuant to the attorney-client privilege, work-product exemption or any other applicable privileges. To the extent necessary, Defendant will provide a privilege log in accordance with Rule 26(b)(5).

3. Defendant further objects to these Interrogatories under Rule 33(d) Fed. R. Civ. P. to the extent Defendant has produced multiple documents which relate to certain Interrogatories,

which documents can be reviewed by Plaintiff to derive or ascertain the answer with the same ease or difficulty that Dr. Chu must exercise to answer the Interrogatories.

4. Defendant reserves the right to construe these Interrogatories reasonably and as limited to non-burdensome, non-overbroad categories of information relevant to the issues of the case.

5. Defendant reserves the right to supplement its responses should it discover additional, more accurate or supplementary information.

6. Defendant objects to these Interrogatories to the extent that they are duplicative or cumulative or seek information that may be obtained from another more convenient, less burdensome or less expensive source.

7. Defendant objects to these Interrogatories insofar as they call for Defendant to reach a legal conclusion in order to respond to a particular Interrogatory.

8. Whenever Interrogatories seek to impose upon Defendant an obligation broader than that imposed by the Federal Rules of Civil Procedure or the Local Rules of this Court, Defendant shall respond in conformance with those rules.

9. Responses to the Interrogatories shall not be deemed to be an admission.

10. These General Objections shall be deemed to be continuing and are incorporated by reference into the Interrogatories, even when not referred to in said response.

**DEFENDANT'S SPECIFIC OBJECTIONS AND RESPONSES
TO PLAINTIFF'S FIRST SET OF INTERROGATORIES**

INTERROGATORY NO. 15:

Did Dr. Chu, either by himself or by persons working under his directions, ever produce a superconductor with a reproducible T_c above 77K before the arrival of M.K. Wu in Houston on January 30, 1987? If yes, identify all documents showing that such a compound was created.

Answer:

Defendant objects to this interrogatory on the grounds of Rule 33(c), Fed. R. Civ. P. in that all of the lab books have been made available to the Plaintiff Hor, either through discovery in this case or through Plaintiff's personal access to the lab books, or through Intervenor Ruling Meng's cooperation with Plaintiff Hor, so that the information to answer this question is equally available to the Plaintiff as it is the Defendant. Defendant further objects to this interrogatory on the basis of its General Objections, which are incorporated herein by reference.

Dr. Chu was the leader and supervisor of the University of Houston ("UH") group and of the efforts undertaken to reproduce the results of the Bednorz & Müller ("B&M") article in November-December 1986. He was also leading and supervising the efforts made to obtain a superconductor above 77 K in November 1986 to March 1987. Both the UH and University of Alabama ("UAL") groups were working under Dr. Chu's direction throughout this period.

Before January 30, 1987, and under Dr. Chu's direction, the UH group synthesized and tested two samples—one on or about November 25, 1986, and the other on or about January 10-12, 1987—that showed signs of superconductivity above 70 K. The results exhibited by both samples were not reproducible.

On January 29, 1987, the UAL group, under Dr. Chu's direction, synthesized a YBCO sample that showed a stable resistive drop above 77 K. This sample was brought to UH on January 30 and tested for Meissner effect and was confirmed to exhibit superconductivity above 77 K. Previously, Dr. Chu constructively had reduced to practice a YBCO sample in a nominal 214 phase through his patent applications 07/002,089 and 07/006,991, filed on January 12, 1987 and January 27, 1987, respectively.

INTERROGATORY NO. 16:

Did Dr. Chu ever state or represent, in any patent disclosure or patent application related to high temperature superconductors dated before January 30, 1987, that a superconductor with a T_c above 77K did not have the $K_2NiF_4(214)$ crystal structure? If yes, identify all documents in which such a representation was made.

Answer:

Dr. Chu objects to disclosing the content of any patent disclosures based on the attorney-client privilege. As to any statements or representations made in patent applications, Defendant objects on the basis that Plaintiff has access to these documents and is equally able to answer this question. All patent applications filed by Defendant prior to January 30, 1987, have been produced as follows:

1. U.S. 07/002,089, filed on January 12, 1987 – produced as CHU00628
2. U.S. 07/006,991, filed on January 27, 1987 – produced as CHU00657

INTERROGATORY NO. 17:

Identify which of the formulas listed on pages H52 and H53 of the Lab Note Book, formulas were conceived by Chu.

Answer:

In early December 1986, the UH lab, under Dr. Chu's direction, examined the pressure effect on the T_c of the mixed phase LBCO sample described in the B&M article. After determining that physical pressure had the effect of raising the T_c , Dr. Chu conceived of the idea to mimic physical pressure with chemical pressure by doing certain chemical substitutions. Dr. Chu conceived of substituting the element Ba with Sr and Ca, and the element La with Y, Lu, and Yb to increase the T_c .

H52 and H53 contain formulas likely entered on January 29 or 30, 1987. Under Dr. Chu's direction, the UH team, based on the news from Wu regarding signs T_c above 77 K, prepared various formulas of potentially superconducting samples. These formulas represent the

LBCO-214 nominal formula with partial doping using the smaller elements (Y, Lu, and Yb) that Dr. Chu had conceived of in December 1986. Further, partial doping by a combination of La, Lu, Y, and Ba to a nominal composition of 214 was conceived and constructively reduced to practice by Dr. Chu in the two patent applications filed prior to January 29, 1987. *See* U.S. Patent Application Nos. 07/002,089 and 07/006,991. Thus, each of the six formulas listed on pages H52 and H53 were made following Dr. Chu's instructions to Meng and the lab.

INTERROGATORY NO. 18:

Explain how Dr. Chu arrived at any formulas that have three (3) digits beyond the decimal point in the Y-substituted compositions such as $(La_{0.9}(Y_{0.155}Ba_{0.845})_{0.1})_2CuO_4$ listed on page H51 of the Lab Note Book.

Answer:

Defendant objects to this Interrogatory to the extent it requires specific knowledge of something that occurred more than 20 years ago. Defendant incorporates herein its General Objections. Under Dr. Chu's direction, the UH lab group was testing various ratios of elements for samples with a nominal 214 formula. The group varied these ratios for signs of a higher T_c , while maintaining the nominal 214 formula. The presence of a thousandth digit (third digit beyond the decimal point) in certain formulas is likely the result of using a calculator to determine the required ratio of a particular element. As Dr. Chu did not perform the particular calculations, he does not know for certain why Meng, Wang, or other lab members, used a thousandth digit in calculating certain of the formulas, which in normal practice, would be unnecessary.

To the best of Dr. Chu's current recollection, the presence of the thousandth digit is not significant because the resolution of the balance used to measure the samples was not precise enough to measure until the thousandth digit.

INTERROGATORY NO. 19:

Identify all technical arguments, scientific evidence and statements in Defendant Chu's Expert Rebuttal Report that establish a scientific basis for Chu's assertion that "Y, Lu have to work."

Answer:

See Chu Expert Rebuttal Report at 4, 5-7.

INTERROGATORY NO. 20:

Did Dr. Chu conceive of the composition $(Y_{0.6}Ba_{0.4})_2CuO_4$ or the equivalent composition $Y_{1.2}Ba_{0.8}CuO_4$ prior to January 29, 1987? If yes, identify all documents showing the conception prior to January 29, 1987.

Answer:

See Answer to Interrogatory No. 17, which is incorporated herein. As to identification of documents, Defendant objects to this interrogatory on the grounds of Rule 33(c), Fed. R. Civ. P. in that all of the lab books have been made available to the Plaintiff, either through discovery in this case or through Plaintiff's personal access to the lab books, or through Intervenor Meng's cooperation with Plaintiff Hor, so that the information to answer this question is equally available to the Plaintiff as it is the Defendant. Defendant further objects to this interrogatory on the basis of its General Objections, which are incorporated herein by reference.

Dr. Chu's conception is evidenced by Meng's lab notebook entries, which contain formulas based on Dr. Chu's conception, his calendar, which supports substitution of Y or Lu for La in a 214 nominal formula, and the 555 formulas of B&M. Further, Dr. Chu's conception and constructive reduction to practice are evidenced in the two patent application he filed prior to January 29, 1987. *See* U.S. Patent Application Nos. 07/002,089 and 07/006,991. The formula $(Y_{0.6}Ba_{0.4})_2CuO_4$ is within the range of formulas that come under Dr. Chu's December 1986 conception and that are disclosed in the patent applications.

INTERROGATORY NO. 21:

Provide the date when Dr. Chu first knew that Ytterbium is magnetic and identify any document showing the date Dr. Chu first knew that Ytterbium is magnetic.

Answer:

Defendant objects to this Interrogatory to the extent it requires specific knowledge of something that occurred more than 20 years ago. Defendant incorporates herein its General Objections. To the best of Dr. Chu's recollection, he learned that Yb was marginally magnetic in the 1970s from James Smith of the Los Alamos National Laboratory. See Chu Deposition at 200:22-201:18; see also A. K. Bhattacharjee & B. Coqlin, "Influence of the Crystalline Field on the Kondo Effect: Cerium and Ytterbium Impurities," PHYSICA B+C, vol. 86-88, 511-12 (1977).

INTERROGATORY NO. 22:

Identify all persons to whom Dr. Chu communicated his conception of Y substitution other than Dr. Hor, M.K. Wu and Ruling Meng prior to January 29, 1987.

Answer:

Defendant objects to this Interrogatory to the extent it requires specific knowledge of something that occurred more than 20 years ago. Defendant incorporates herein its General Objections. Dr. Chu may have discussed his conception of substituting Y for La with Roy Weinstein, the law firm of Arnold White & Durkee, and the law firm of Pravel Gambrell Hewitt Kimball & Kreiger prior to January 29, 1987. Disclosures may have been made to Scott Chafin who was General Counsel of UH at the time.

Dr. Chu also communicated his idea for the Y substitution in writing when he filed U.S. patent applications 07/002,089 and 07/006,991 on January 12, 1987 and January 27, 1987, respectively. It should be understood, that during the period from November 1986 to March 1987, there was a great need for confidentiality. Outside the UH lab, Dr. Chu was hesitant to communicate his ideas for substitution for fear of disclosure.

INTERROGATORY NO. 23:

If you believe that any pages in the Lab Notebooks maintained by Ruling Meng which have been produced in this lawsuit, that is any pages with H numbers, have been altered, changed or otherwise tampered with, please identify those pages and state when and how those pages have been altered, changed or tampered with.

Answer:

Defendant objects to the use of the terms “altered, changed or otherwise tampered with” as vague, ambiguous, and unclear. Defendant does not have any knowledge regarding any alterations, changes or tampering with the Lab Notebooks, except that since this litigation began, Dr. Chu has reviewed certain lab notebook entries, and believes that the addition of the letter “b” on pages H51 and H52 were the result of Ruling Meng (or a student in the lab) incorrectly replacing the element Yb for Y when synthesizing the samples. Dr. Chu recalls that this error was discovered after the Yb sample was synthesized and measured, and thus, a “b” was added to “Y” to indicate the sample that had actually been synthesized. However, those recollections are of events occurring more than twenty years ago, and may be clouded with passage of time.

Dated: August 31, 2010

Respectfully submitted,

/s/ Lester L. Hewitt

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CHING-WU “PAUL” CHU

CERTIFICATE OF SERVICE

The undersigned hereby certifies that all counsel of record are being served with a copy of this document via U.S. Mail and email on this 31st day of August, 2010.

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VERIFICATION

I, Ching-Wu “Paul” Chu, am the Defendant in *Hor v. Chu*, U.S. District Court for the Southern District of Texas, C.A. No. 4:08-cv-3584.

I verify for purposes of these interrogatory answers that the facts stated therein are true and correct to the best of my current knowledge, information, and belief, and to any extent these answers contain facts not within my personal knowledge, I believe they are true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

Date

Ching-Wu “Paul” Chu

OBJECTIONS

Date

Lester L. Hewitt