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UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

-----x
SAMSUNG ELECTRONICS CO. LTD., :
SAMSUNG ELECTRONICS AMERICA, INC., :
SAMSUNG SEMICONDUCTOR, INC., AND :
SAMSUNG AUSTIN SEMICONDUCTOR LLC, :
PETITIONER, : IPR2024-00533
v. : (PATENT 8,974,270)
CHIEN-MIN SUNG :
PATENT OWNER. :
-----x

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VIDEOTAPED DEPOSITION OF MING-YI TSAI
VOLUME 2
TAICHUNG CITY, TAIWAN
WEDNESDAY, FEBRUARY 19, 2025
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Videotaped deposition of MING-YI TSAI, held in:

NATIONAL CHIN-YI UNIVERSITY OF TECHNOLOGY

NO. 57, SECTION 2

ZHONGSHAN ROAD

TAIPING DISTRICT

TAICHUNG CITY 411030

TAIWAN

PURSUANT TO NOTICE, BEFORE MARK MCCLURE, REGISTERED
PROFESSIONAL REPORTER AND CALIFORNIA CERTIFIED SHORTHAND
REPORTER NO. 12203.

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11 (APPEARING IN PERSON)

12 JOSEPH TSENG, THE CHECK INTERPRETER

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PROCEEDINGS

TAI LEE and JOSEPH TSENG
were previously sworn to interpret the
Mandarin Chinese language.

MING-YI TSAI,
having been previously sworn, was examined
and testified as follows:

EXAMINATION

BY MR. HA:

Q. Welcome back, Dr. Tsai.

A. Thank you.

Q. Today, we had about 20 minutes left on the
record last night, but by agreement between the parties,
we have agreed to extend the deposition time for each of
the three IPRs by another hour each.

So for this one, we will have an hour and 20
minutes left. For the next two depositions, we will
have eight hours each.

Is that clear?

A. (In English) Oh, my God.

Q. I heard you say "Oh, my God," Dr. Tsai.

You know, this does not mean that you will

1 necessarily have to be here the entire allotted time.
2 The faster I can get answers to my questions, the faster
3 we can get done.

4 So if you can really try to focus on my
5 questions and answer the specific questions that I ask
6 you, I would very much appreciate that.

7 So did you have any conversations with counsel
8 between Monday and today regarding today's deposition?

9 A. No.

10 Q. Did you spend any time preparing for today's
11 deposition?

12 A. Yes, I did.

13 Q. How long did you prepare?

14 A. Probably several hours.

15 Q. And did you review any documents in the course
16 of your preparation?

17 MR. CHAN: For the record, this is in
18 reference to the '270 patent, right?

19 MR. HA: Yes.

20 MR. CHAN: To make a clear record, this is in
21 relation to '270.

22 THE WITNESS: I looked at my papers, as well
23 as my declarations.

24 BY MR. HA:

25 Q. Did you review all three declarations?

1 A. I generally reviewed three of them.

2 Q. Which papers did you review?

3 A. Well, actually, I reviewed the one that was
4 coauthored together with Dr. Sung in 2011, although I
5 don't remember the name, title of it. And this was
6 covered in the -- in this case.

7 And also, plus another one. That is something
8 related with the single diamond dresser.

9 THE CHECK INTERPRETER: Check interpreter's
10 rendition: "I reviewed a diamond-related paper, which
11 is cited for this matter. I don't remember the English
12 title.

13 "And also, I reviewed another paper, which I
14 coauthored with Dr. Sung in 2011, and I think it was --
15 and also, it was -- I reviewed my paper, which was about
16 single diamond dressing."

17 BY MR. HA:

18 Q. I'm handling you Exhibit 1014, which is a
19 paper that was published in 2011.

20 Is that the paper that you reviewed?

21 A. No. Actually, I reviewed two papers -- the
22 one relating to single diamond dresser, and the other
23 one, I was coauthored with Dr. Sung.

24 Q. I'm handing you Exhibit 1042.

25 Is this the paper that you reviewed?

1 A. (In English) No, no, no, no.
2 Q. I'm handing you Exhibit 1043.
3 Is this the paper that you reviewed?
4 A. (In English) No, no, no, no.
5 Q. I'm handing you Exhibit 1044.
6 Is this the paper that you reviewed?
7 A. (In English) No, no.
8 Q. I'm handing you Exhibit 1045.
9 Is this the paper that you reviewed?
10 A. (In English) No.
11 Q. Handing you 1046.
12 A. (In English) No.
13 Q. That's not the paper that you reviewed?
14 Exhibit 1047.
15 Is that the paper you reviewed?
16 A. (In English) No.
17 Q. Exhibit 1048.
18 Is that the paper that you reviewed?
19 A. (In English) No.
20 Q. Exhibit 1049.
21 Is that the paper that you reviewed?
22 A. (In English) No.
23 Q. I'm handing you Exhibit 2006.
24 Is this the paper that you reviewed?
25 A. (In English) Yes.

1 Q. Which part of Exhibit 2006 did you review?

2 A. I was mainly look at the effect of the single
3 diamond to the pad when -- at the time when I was doing
4 the research.

5 Q. Why were you looking at this paper for the
6 preparation of today's deposition?

7 A. Because all these questions were surrounding
8 the time period where I was starting my Ph.D. degree.
9 So I thought that I should be clearly to know -- to look
10 at the portion in that period.

11 Q. You said you reviewed two papers?

12 A. Yes.

13 Q. We will circle back to the second paper once
14 we locate it. Actually, maybe not. I'll circle back on
15 that second paper, but let's continue.

16 Is there any reason why you couldn't provide
17 accurate and truthful testimony today?

18 A. I don't think I have any reason.

19 Q. Dr. Tsai, do you remember when we were
20 discussing your definition of the level of ordinary
21 skill in the art, on Monday?

22 A. Yes.

23 Q. I'm handing you a copy of your declaration.
24 Can you please turn to paragraph 29.

25 I know you have possible changes to the level

1 of education that a -- and I know you had possible
2 changes to the level of education that a POSITA
3 requires, on Monday, but today, I just want to focus on
4 the level of experience that a POSITA must have.

5 A. Okay.

6 Q. It's your opinion that a POSITA must have at
7 least two years of experience in developing CMP
8 technology, including some specific experience with the
9 design and development of CMP pad dressers, correct?

10 A. Yes.

11 Q. And you disagreed with Dr. Shanfield's opinion
12 that a POSITA must have a minimum of two to three years
13 of experience in the development of integrated circuit
14 processing and fabrication techniques, correct?

15 A. That's right.

16 Q. In paragraph 28 of your declaration, you
17 disagreed with Dr. Shanfield's definition because it's
18 overly broad, right?

19 A. Yes.

20 Q. In your opinion, Dr. Shanfield's definition,
21 quote-unquote, "lacks any specific reference to CMP
22 technology, which is a specialized branch of
23 semiconductor manufacturing."

24 Right?

25 A. Yes.

1 Q. Can you give me one particular example of a
2 technology in the design and development of CMP pad
3 dressers that an engineer trained two years in the field
4 of processing and fabrication of integrated circuits
5 would not have been able to understand?

6 MR. CHAN: Objection. Form.

7 THE WITNESS: I feel it should be related to
8 the design of diamond disk.

9 BY MR. HA:

10 Q. My question was, can you give me one example
11 of a technology in the design and development of CMP pad
12 dressers that an engineer that was trained in the
13 fabrication and processing of integrated circuits would
14 not have been able to understand?

15 A. Are you asking about example relating to
16 design of a diamond disk?

17 Q. Anything in the field of design and
18 development of CMP pad dressers, some example
19 technology that an engineer who is trained in the
20 fabrication and processing of integrated circuits would
21 not have been able to understand.

22 MR. CHAN: Objection. Form.

23 THE WITNESS: I think it should be the
24 manufacturing of the diamond disk.

25

1 BY MR. HA:

2 Q. So you're saying the manufacturing of diamond
3 disk is an example of a technology that an engineer who
4 is trained in the fabrication and processing of
5 integrated circuits would not have been able to
6 understand?

7 A. My understanding is that this particular
8 person in manufacturing -- he should possess the
9 knowledges of material science, physics, chemistry in
10 order to be able to manufacture and design diamond disk.

11 Q. So, in your opinion, the POSITA requires all
12 three degrees?

13 MR. CHAN: Objection to form.

14 THE WITNESS: I believe that it would be
15 better if this person has at least a master's degree and
16 above.

17 BY MR. HA:

18 Q. In all of master science -- sorry, in all of
19 material science, physics and chemistry?

20 A. I'm saying that this person should at least
21 possess a master's degree of engineering.

22 Q. An engineering degree provides you
23 understanding of material science, physics and
24 chemistry?

25 MR. CHAN: Objection. Form. Misstates

1 testimony.

2 THE WITNESS: What I'm saying is that if this
3 person can understand the design and manufacturing of
4 diamond disks, including the characteristics of
5 diamonds, as well as the characteristics of material,
6 then I feel this person, if this person has this kind of
7 experience, has better chances.

8 BY MR. HA:

9 Q. So if an engineer trained in the fabrication
10 and processing of integrated circuits does have
11 experience and training and education in understanding
12 the characteristics of materials, such as diamonds, that
13 would be sufficient for your definition of POSITA?

14 A. Well, in addition, this person should also
15 have the practical experience such as operating CMP
16 technology, plus, must have the experience of design and
17 manufacturing diamond disks.

18 Q. What experience of designing and manufacturing
19 diamond disks is required?

20 A. What experiences?

21 Actually, this person should have personally
22 practiced and implemented this thing.

23 Q. So a person who has not actually, with their
24 own hands, made and implemented a diamond disk would not
25 qualify as a POSITA?

1 MR. CHAN: Objection to form. Misstates
2 testimony.

3 THE WITNESS: Well, what I'm saying is that he
4 has the best chance. It doesn't mean any other people
5 do not have any chance.

6 BY MR. HA:

7 Q. I'm just trying to figure out what other
8 person qualifies as a POSITA.

9 So the question is: Would an engineer trained
10 in the field of integrated circuit fabrication and
11 processing be able to understand how people develop and
12 design CMP pad dressers?

13 A. I think it should be a little bit difficult
14 for this engineer.

15 Q. And why is that?

16 MR. CHAN: Objection. Form.

17 I think he said "it's very difficult," not "a
18 little bit difficult."

19 MR. HA: So what is the actual translation?

20 MR. CHAN: "A little difficult."

21 MR. HA: "A little difficult." Okay. Thank
22 you.

23 THE WITNESS: Just like I said, this person
24 should possess the material science knowledge and
25 probably should have the knowledge of the fabrication

1 processing, plus the knowledge of designing and also
2 should have the knowledge of the pad, contacting to the
3 pad, the movement on the pad, this kind of knowledge.

4 BY MR. HA:

5 Q. Okay, let's move on. Can you turn to Claim 1
6 of the '270 patent.

7 MR. HA: Can we go off the record for two
8 minutes to get the papers in order.

9 MR. CHAN: That's fine. Off the record.

10 (A recess was taken from 9:31 a.m. to 9:33
11 a.m.)

12 BY MR. HA:

13 Q. Sorry about that short break.

14 I'm handing you Exhibit 1001, which is the --
15 a copy of the '270 patent. Can you please turn to Claim
16 1.

17 Do you see the term "superabrasive particles"
18 in Claim 1?

19 A. Yes.

20 Q. Do you have an opinion whether the term
21 "superabrasive particles" should be interpreted the same
22 or differently across the '270, '862 and the '802
23 patents?

24 MR. CHAN: Objection. Form. Beyond the
25 scope.

1 THE WITNESS: Actually, I'm not aware if the
2 applicant of the patents would carry the same meaning
3 over the three, but probably yes.

4 BY MR. HA:

5 Q. What is your opinion whether the term
6 "superabrasive particles" should be interpreted the same
7 or differently across the three patents?

8 MR. CHAN: Objection to form. Beyond the
9 scope.

10 THE WITNESS: I still would like to stress
11 that I'm not sure if the author defines the same meaning
12 across three patents, but just looking at the wording,
13 they are the same wording.

14 BY MR. HA:

15 Q. So do they mean the same thing across the
16 three patents?

17 MR. CHAN: I would object. Form, and instruct
18 the witness to limit his testimony to only '270.

19 MR. HA: Alex, you are instructing the witness
20 not to answer my question, correct?

21 MR. CHAN: I am instructing the witness to
22 answer the aspects of the question in relation to '270,
23 but not as to '862 and '802.

24 BY MR. HA:

25 Q. My question still stands: Do they mean the

1 same thing across the three patents?

2 MR. CHAN: Same objection. Form. Relevance.
3 Beyond the scope and instruction.

4 THE WITNESS: I have answered just now.

5 BY MR. HA:

6 Q. You did not, respectfully, sir.

7 A. I said that I don't know if the author gave
8 the same definition or meaning the same thing, but just
9 by looking at the wording, it's the same words. Because
10 this term covers a very broad scope, so I really do not
11 know how to define it.

12 Q. You do not know how to define the term
13 "superabrasive particles"?

14 A. Because it covers a very broad scope of the
15 content. Therefore, I don't know what the author tried
16 to indicate.

17 Q. Okay. Let's go back to your declaration.

18 Can you please turn to paragraph 60 through 68
19 of your declaration. This is under the section heading
20 "Sung '479 is not enabling to teach the difference in
21 protrusion distance between the highest protruding tip
22 and the second highest protruding tip of the monolayer
23 of superabrasive particles is less than or equal to
24 about 50 microns."

25 Correct?

1 A. Yes.

2 Q. In paragraph 60, I think you called this Claim
3 Limitation 1B, is that right?

4 A. Yes.

5 Q. Is it okay for me to also call it Limitation
6 1B?

7 A. Yes.

8 Q. So this is Exhibit 1005, which is a copy of
9 the Sung '479.

10 Can you turn to paragraph 82 of Sung '479,
11 please.

12 Are you there, sir?

13 A. Yes.

14 Q. The first sentence of paragraph 82 says:
15 "Various reverse casting methods may be utilized to
16 manufacture the superabrasive tools, and particularly
17 the CMP pad dressers, according to aspects of the
18 present invention."

19 Do you see that?

20 A. Yes.

21 Q. Now, go back to your declaration, please,
22 between 60 and 68.

23 Did you ever discuss whether paragraph 82 of
24 Sung '479 enables Limitation 1B?

25 A. Yes.

1 Q. Where did you discuss paragraph 82 of Sung
2 '479 in your declaration?

3 Maybe Dr. Tsai misunderstood my question. Let
4 me ask it again.

5 Between paragraph 60 to 68 of your
6 declaration, did you ever discuss paragraph 82 of Sung
7 '479?

8 A. Are you referring to the term "reverse casting
9 method"?

10 Q. Anything about paragraph 82 of Sung '479.

11 Did you ever discuss topics related to
12 paragraph 82 of Sung '479 between paragraph 60 and 68 of
13 your declaration?

14 THE LEAD INTERPRETER: The witness is pointing
15 to paragraph 64 in the middle section.

16 THE WITNESS: I did find some sentences that
17 are similar to the content of paragraph 82 of '479,
18 which is at paragraph 64 of the declaration, starting
19 from "At best, Sung's '479 states that the superabrasive
20 particles may be arranged along a leveling surface that
21 has a shape corresponding to a particular designated
22 profile."

23 This is similar but not exactly the same.

24 BY MR. HA:

25 Q. So that sentence cites to paragraph 71,

1 correct?

2 A. Well, meaning of this sentence is similar to
3 the meaning of reverse casting method. They are
4 similar.

5 Q. So what's described in paragraph 71 of Sung
6 '479 is combinable with the reverse casting techniques
7 described in paragraph 82 of Sung '479?

8 A. Paragraph 82 of Sung '479 only mentioned the
9 reverse casting method, where paragraph 71 described
10 this sentence right there, and that is similar to the
11 reverse casting method.

12 And this sentence is "In one aspect, however,
13 the superabrasive particles may be arranged along a
14 leveling surface that has a shape corresponding to a
15 particular designated profile."

16 Q. Understood.

17 So the aspect described in paragraph 71 is
18 combinable with the aspect described in paragraph 82,
19 correct?

20 MR. CHAN: Objection. Form. Misstates
21 testimony.

22 THE WITNESS: Can you be more specific and
23 clarify what you mean by "combinable"?

24 BY MR. HA:

25 Q. Well, it was your testimony that paragraph 64,

1 which only cites to paragraph 71, is similar to the
2 reverse casting technique described in paragraph 82,
3 correct?

4 A. Well, what I'm saying is that both concepts
5 are pretty similar. However, they did not describe in
6 detail how to implement this technique, meaning the
7 reverse casting method.

8 Q. Okay. So you're saying that basically the
9 concept described in paragraph 71 is more or less the
10 same thing as the concept described in paragraph 82?

11 MR. CHAN: Objection. Form. Misstates
12 testimony.

13 THE WITNESS: It does describe the idea and
14 the concept of the reverse casting method in there.
15 However, I know this method, I understand it.
16 Therefore, I know it, and ordinary people may not know
17 it.

18 BY MR. HA:

19 Q. Do you know when reverse casting technique was
20 first published?

21 A. I don't remember, but I had published a paper,
22 or papers.

23 Q. So you made diamond disks using reverse
24 casting, correct?

25 MR. CHAN: Objection. Form. Misstates

1 testimony.

2 THE WITNESS: Mostly, they were made by the
3 manufacturers that I worked with.

4 BY MR. HA:

5 Q. So you knew how to make reverse casting --
6 sorry, you knew how to make diamond disks using reverse
7 casting because other people made it for you?

8 MR. CHAN: Objection to form. Misstates
9 testimony.

10 THE WITNESS: Well, regarding this method, it
11 was utilized mostly by the manufacturers that I worked
12 with.

13 BY MR. HA:

14 Q. So you have an understanding of all of the
15 characteristics associated with that diamond disk made
16 by reverse casting, correct?

17 MR. CHAN: Objection. Form. Misstates
18 testimony.

19 THE WITNESS: Well, in terms of how to combine
20 the diamond, this part of it, the company has its own
21 know-how, which I may not be so familiar with it.

22 BY MR. HA:

23 Q. So you published papers on diamond dressers,
24 correct?

25 A. (In English) Yes.

1 Q. And you published papers on diamond dressers
2 made by reverse casting, correct?

3 A. (In English) Yes.

4 Q. And those diamond dressers have diamond
5 particles that protrude a certain amount of distance
6 away from the substrate, correct?

7 MR. CHAN: Objection. Form.

8 THE WITNESS: Can you repeat the question
9 again?

10 THE LEAD INTERPRETER: I'll retranslate.

11 THE WITNESS: (In English) Yes.

12 BY MR. HA:

13 Q. And do those diamond dressers have a highest
14 protruding tip?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: Well, for that I think we need
17 to do some measurement in order to know it.

18 BY MR. HA:

19 Q. So your testimony is, on a diamond dresser,
20 you do not know if there will necessarily be a highest
21 protruding tip, Dr. Tsai?

22 A. What I'm saying is that, on the diamond
23 dresser, it combines many, many diamond particles on it.

24 In terms of the protruding height of those
25 diamond particles in terms of how much height that those

1 are, which I cannot predict, I don't know, I need to do
2 some measurement.

3 Q. I'm not asking where on the diamond dresser
4 the highest protruding tip is.

5 I'm asking: Is there a highest protruding tip
6 on the diamond dresser?

7 A. I'm not sure.

8 Q. Let me ask it this way.

9 We have seven people sitting here in this
10 room.

11 Is there necessarily a tallest person in this
12 room?

13 MR. CHAN: Objection. Form. Hypothetical.

14 THE WITNESS: Because this is a hypothetical
15 question, I don't know how to answer it.

16 BY MR. HA:

17 Q. You don't know how to answer this hypothetical
18 question, whether there's necessarily a tallest person
19 in this room?

20 A. And, of course, if you have performed a
21 measurement, of course, you will know it.

22 Q. And so unless you measure the height of every
23 seven people sitting here today, you will not be able to
24 provide an answer whether there is a tallest person in
25 the room.

1 Is that your testimony?

2 A. What I mean is that if you just want to know a
3 general rough height of these people, you can line them
4 up. You probably can see that.

5 But if you want me to tell you exactly the
6 difference of the heights, of course, I need to do some
7 measurement.

8 Q. I don't want you to tell me the height
9 differences.

10 The specific question I'm asking you is: Is
11 there a tallest person in this room among the seven
12 people?

13 A. Well, actually, all of these people here are
14 sitting here. There's no way for me to do any
15 comparison.

16 How can I make a comparison if everyone is
17 sitting here?

18 In order to know that, I think that we need to
19 stand up.

20 Q. Okay. So going back to diamond dressers, you
21 cannot tell me if there is a highest protruding tip on a
22 diamond disk, correct?

23 A. No, no, no, that's what -- not what I mean.

24 I am saying that we still need to do some
25 measurements. For example, the one you just described

1 is something you implied, that a person can look at them
2 by eyes. However, diamond particles are very small
3 particles. You need to do measurement in order to know
4 it.

5 Q. Okay. So purely using logic, you cannot tell
6 me that there is a highest protruding tip on a diamond
7 disk, correct?

8 A. If the diamond particles utilized on the
9 diamond disk are very, very small, I think there is some
10 difficulty.

11 Q. You just injected a hypothetical to my
12 question.

13 So can you just answer my question?

14 So let me ask my question again.

15 On a typical CMP pad dresser made using
16 reverse casting, you cannot tell me, using pure logic,
17 that there is a highest protruding tip, is that correct?

18 MR. CHAN: Objection. Form. Misstates
19 testimony.

20 THE WITNESS: Well, what I am saying is that
21 you would still need to go through the measurements in
22 order to know if there is a highest protruding tip.

23 BY MR. HA:

24 Q. Okay. Then one last question on this.

25 On the typical CMP pad dresser made using

1 reverse casting, you cannot tell me, using pure logic,
2 that there is a second highest protruding tip, is that
3 correct?

4 MR. CHAN: Objection to form. Misstates
5 testimony.

6 THE WITNESS: Well, because we are doing the
7 researches in my profession. Therefore, we still need
8 to do some measurements in order to offer you the
9 answer.

10 BY MR. HA:

11 Q. Can you turn to paragraph 11 of your '270
12 declaration.

13 There you talk about this paper called
14 "Dressing Characteristics of Oriented Single Diamond on
15 CMP Polyurethane Pad."

16 Do you see that?

17 A. Yes.

18 Q. I think this is the same Exhibit 2006 that you
19 said you studied between Monday and today's deposition,
20 correct?

21 A. (In English) Yes, yes.

22 Q. Can you turn to page 1 of 4 of Exhibit 2006
23 where it has the acknowledgment section.

24 MR. CHAN: This is exhibit --

25 MR. HA: 2006.

1 MR. CHAN: Counsel, what's the title of the
2 document again?

3 MR. HA: "Dressing Characteristics of Oriented
4 Single Diamond on CMP Polyurethane Pad."

5 THE WITNESS: Yes.

6 BY MR. HA:

7 Q. Here, you thanked Mr. Y. L. Pai and
8 Dr. J. Sung, of Kinik Company.

9 Is that second person, J. Sung, the same
10 Dr. Sung of these three patents' named inventor?

11 A. Yes.

12 Q. You specifically thanked Dr. Sung here for
13 providing financial support and the conditioners used in
14 the study, correct?

15 A. They were provided and supported by Kinik
16 Company.

17 Q. But you thanked Dr. Sung, of Kinik Company,
18 for providing financial support, correct?

19 A. I was mainly thanked the support provided by
20 Kinik Company, and because there were many people in
21 Kinik and I wanted to appreciate the supervisor.

22 Q. So there were many people in Kinik, but you
23 specifically thanked Dr. Sung because he was the
24 supervisor at Kinik, correct?

25 A. Yes.

1 Q. And do you know if he controlled funding at
2 Kinik?

3 A. I was just a student back then so I don't
4 know.

5 Q. I'm also going -- I'm going to go back to your
6 earlier comment, that you reviewed two papers.

7 MR. TA: I'm going to hand you a copy of this
8 which -- Counsel, it's actually a printed exhibit as --
9 it's 2007, in our proceedings.

10 MR. CHAN: Thank you.

11 THE WITNESS: (In English) No, no, no.

12 BY MR. HA:

13 Q. Not that one? Okay.

14 MR. TA: So maybe, Counsel, we can have a
15 sidebar. We can go of the record and have a quick
16 sidebar in terms of what that second paper was.

17 Are you willing to help locate where that
18 second paper is?

19 MR. CHAN: That's fine.

20 (Discussion off the record.)

21 BY MR. HA:

22 Q. Dr. Tsai, I'm handing you Exhibit 1048.

23 Is that the second paper you reviewed between
24 Monday and Wednesday?

25 A. (In English) Yes.

1 Q. Why did you review that paper?

2 A. Because this paper mentioned reverse casting.
3 Therefore, I thought I probably would like to take a
4 look at it.

5 MR. HA: Okay. No further questions.

6 If you have any redirects, please feel free.

7 MR. CHAN: Okay.

8

9 EXAMINATION

10 BY MR. CHAN:

11 Q. Good morning, Dr. Tsai. I have a couple
12 follow-up questions for you.

13 Counsel for petitioner asked you a number of
14 questions, and in referencing the petition, counsel for
15 the petitioner went through page 6 with you.

16 Before I ask you a question, did you write
17 that petition?

18 A. Where is it?

19 MR. CHAN: Do you have the petition?

20 We will use the same exhibit already
21 introduced.

22 MR. HA: It's the '270 petition.

23 MR. CHAN: Oh, it's the '270 petition.

24 THE WITNESS: (In English) No.

25

1 BY MR. CHAN:

2 Q. Okay. Let's go to page 8 of that petition.

3 Now, counsel for the petitioner went through
4 several diagrams on page 8 of the petition. In seeking
5 your testimony about these diagrams, counsel injected
6 the statement "The pad dresser is pressed against the
7 pad."

8 Now, for the clarity of the record, did you
9 testify that the pad dresser is pressed against the
10 conditioner?

11 MR. HA: Objection. Leading. Misstates
12 testimony.

13 THE WITNESS: Generally, the diamond disk --
14 let me rephrase that.

15 Generally, the action of a diamond disk,
16 there's something on that it would not only rotate, it
17 will also move back and forth.

18 MR. CHAN: I see swiping motion.

19 Is that what he's referring to?

20 I don't know what that motion means.

21 THE WITNESS: Okay, diamond disk is sliding or
22 moving on the pad.

23 MR. CHAN: Let the record reflect that the
24 witness is swiping his hand horizontally.

25 Q. Now, let me ask you a different question.

1 You were asked about Dr. Sung and your
2 relationship with him.

3 Do you remember those questions?

4 A. I don't quite remember.

5 Q. Let's be more specific.

6 You testified that you were a Ph.D. student
7 working under a professor at the time when you first met
8 Dr. Sung, is that correct?

9 MR. HA: Objection. Misstates testimony.

10 THE WITNESS: Yes.

11 BY MR. CHAN:

12 Q. What was the name of the professor?

13 A. Yushuan Liao.

14 Q. Is that Y.S. Liao?

15 A. (In English) Yes.

16 Q. Did Kinik provide funding for researches
17 conducted by Professor Liao?

18 A. (In English) Yes.

19 Q. And did Kinik also provide funding for
20 researches for other professors at the same school?

21 MR. HA: Objection. Foundation. Speculation,
22 and form.

23 THE WITNESS: That I don't know.

24 BY MR. CHAN:

25 Q. What about for other schools?

1 MR. HA: Same objections.

2 THE WITNESS: Probably there were some for
3 other schools, such as National Taipei University of
4 Science and Technology.

5 BY MR. CHAN:

6 Q. For funding provided by Kinik, was there a
7 contract between Kinik and Professor Liao?

8 MR. HA: Objection. Foundation. Speculation.
9 Form.

10 THE WITNESS: Probably there was one.

11 BY MR. CHAN:

12 Q. For funding provided by Kinik, was there a
13 contract between Kinik and you?

14 A. No.

15 Q. And did the money come from Dr. Sung for the
16 funding provided by Kinik?

17 MR. HA: Objection. Leading. Form.

18 THE WITNESS: No.

19 BY MR. CHAN:

20 Q. Did the money received from Kinik go to you or
21 Professor Liao?

22 A. It should be Professor Liao.

23 Q. At the time when you were a Ph.D. student, did
24 Professor Liao also have research projects funded by
25 companies other than Kinik?

1 A. I think there were.

2 Q. Did Professor Liao have research projects
3 funded by the Taiwanese government?

4 A. Yes.

5 Q. When you were a Ph.D. student, how many
6 students were there who were also working under
7 Professor Liao?

8 A. Probably anywhere from 10 to 20.

9 Q. And of those students, how many of them also
10 worked on projects funded by Kinik?

11 A. Probably two to three.

12 Q. And at that time, who did Kinik designate as
13 the point of contact for your projects?

14 A. According to my recollection, back at that
15 time, there were two people that I could remember. The
16 first one was an engineer by the name either Chich Chung
17 Chou --

18 THE LEAD INTERPRETER: C-h-o-u.

19 THE WITNESS: -- or Chih Chung Chou.

20 THE LEAD INTERPRETER: C-h-o-u.

21 THE WITNESS: Another person that I frequently
22 had contact with was by the name Jan Jong Deng.

23 THE LEAD INTERPRETER: D-e-n-g.

24 BY MR. CHAN:

25 Q. Is his name Chih, C-h-i-h, Chung, C-h-u-ng,

1 last name Chou, C-h-o-u, as reflected in Exhibit 1045?

2 A. Yes, his name is this.

3 Q. Was Dr. Sung a point of contact for your
4 projects?

5 A. We were all students back at that time, so we
6 always contacted with engineers. So him or his
7 secretary.

8 Q. You testified that there were several meetings
9 with Kinik.

10 Do you remember that?

11 MR. HA: Objection. Vague.

12 THE WITNESS: I think I remember it.

13 BY MR. CHAN:

14 Q. And was Mr. Chou there?

15 MR. HA: Objection. Foundation.

16 THE WITNESS: Generally, when we had meetings,
17 most of the time he was there.

18 BY MR. CHAN:

19 Q. And was Dr. Sung also there?

20 A. I don't quite remember, but basically, if we
21 had to discuss important issues, most of the time he was
22 there.

23 Q. How many representatives from Kinik were at
24 the meetings?

25 A. I'm not quite sure. Most of the time there

1 were quite a lot of people from Kinik, but sometimes
2 there were only a few.

3 Q. Counsel for petitioner mentioned somebody by
4 the name of Y.L. Pai.

5 Do you know who he is?

6 A. I do.

7 Q. Who was he?

8 A. He was the chairman of that company.

9 Q. Was Mr. Pai also present at those meetings?

10 A. Mostly, he was there.

11 Q. When Professor Liao entered into a contract
12 with Kinik, what was the expectation in terms of work
13 products?

14 MR. HA: Objection. Speculation.

15 THE WITNESS: First one, of course, Kinik was
16 intending to cultivate talents.

17 And secondly, they were thinking of making
18 better quality diamond disks. So they would like to
19 understand about the effect of the diamond on the pad
20 because diamond is the object having both the six faces
21 and eight faces, and so they would like to understand if
22 a diamond penetrate onto the pad with a different angle
23 and a direction, and what would be the result.

24 So we were students, so we were given this
25 duty to understand these basic concepts and theories,

1 and later on, they could use them to have some
2 discussions to see if they can make a better diamond
3 disk.

4 Q. Did you work on any projects -- strike that.

5 During that time, did you work on any projects
6 funded by companies other than Kinik?

7 MR. HA: Objection. Beyond the scope.
8 Leading. Form.

9 THE WITNESS: Back at that time, we also get
10 funding from government agencies, such as Council of
11 Science and Technology.

12 THE CHECK INTERPRETER: "National Science
13 Council."

14 BY MR. CHAN:

15 Q. Now, counsel for petitioner discussed with you
16 a number of your papers.

17 My question is: How many technical papers or
18 books have you published?

19 A. The papers for conferences, do those also
20 count?

21 THE CHECK INTERPRETER: "For seminars."

22 BY MR. CHAN:

23 Q. Yes.

24 A. If so, then it should be over 100. Maybe
25 more. I don't remember. But for sure over 100.

1 Q. More or less than 150?

2 A. There is a chance that it could be over 150,
3 but I never actually counted.

4 Q. Let me hand you what has been marked as
5 Exhibit 1042, which I believe you also have a copy in
6 front of you.

7 Do you have 1042?

8 MR. CHAN: I wanted the marked copy. So that
9 copy should be before the witness.

10 Q. Do you recognize this exhibit?

11 A. I do.

12 Q. Did you write this paper?

13 A. (In English) No.

14 Q. You did not author this paper?

15 A. (In English) No.

16 Q. Did you speak with or collaborate with
17 Dr. Sung on this paper?

18 A. (In English) No.

19 Q. Did Dr. Sung reach out to you about this
20 paper?

21 A. (In English) No.

22 Q. So why was your name on this paper as a
23 coauthor?

24 A. Because this paper covers a lot of the
25 experimental data that I worked with Kinik at that time.

1 Q. So Dr. Sung used your data and then put your
2 name on the paper as a coauthor without your knowledge?

3 A. I think so.

4 Q. Let me introduce -- well, strike that.
5 Let me hand you what has been marked as
6 Exhibit 1043.

7 MR. CHAN: Where are the witness's copies?
8 Thank you, I appreciate it.

9 Q. Now, counsel for petitioner gave you this
10 exhibit earlier.

11 Do you recognize this exhibit?

12 A. I do.

13 Q. Well, when was this paper published?

14 A. 2009.

15 Q. Did you speak with or collaborate with
16 Dr. Sung on this paper?

17 A. This paper was written by me, and it mentioned
18 ODD in there. That was the method that we did the
19 research at that time, and ODD was an idea or a thought
20 of Kinik at that time.

21 Well, I also was doing the basic research and
22 studying the diamonds in terms of the different shapes
23 and the directions of diamonds, and those different
24 shapes and diamonds -- the effect of those shapes and
25 diamonds to the pad. We were doing a lot of basic

1 research.

2 So we were thinking that, is that possible?

3 We could take the diamond crystals with the
4 same shape and direction and put on the disk, and those
5 were the study we were doing.

6 THE CHECK INTERPRETER: Check rendition: "We
7 were doing a lot of research, and later we thought -- we
8 thought that whether it was possible to use the same
9 crystalline type, the same orientation of the diamond
10 and create it into a diamond disk."

11 BY MR. CHAN:

12 Q. Did Dr. Sung work with you on this paper?

13 A. Actually, I wrote the -- let me rephrase that.

14 I did the entire experiments, and also, I had
15 this concept as well, but however, the innovative
16 diamond disk used in here was provided and supported by
17 Kinik.

18 In the Taiwanese culture, we think that this
19 concept -- Kinik also had some contribution to it.
20 Therefore, that we also put their name on the paper.

21 Q. Did Dr. Sung know that you published this
22 paper?

23 MR. HA: Objection. Speculation, hearsay, and
24 form.

25 MR. CHAN: Strike that. Let me withdraw the

1 question.

2 Q. Did you tell Dr. Sung about this paper?

3 A. (In English) No.

4 Q. Let me introduce what has been marked as
5 Exhibit 1044. Strike that.

6 Counsel for petitioner has already marked this
7 exhibit as 1044. Let me hand this to you.

8 Do you remember this paper?

9 A. Yes.

10 Q. This paper was written in 2003, am I correct?

11 A. Yes, 2009.

12 Q. Now, I see Dr. Sung's name on this paper, and
13 his contact at Kinik is also listed.

14 Can you please confirm for me, please?

15 A. That's correct. This paper -- we worked with
16 Kinik.

17 Q. Are you the primary author of this paper?

18 A. Yes.

19 Q. I also see Dr. Sung's name on here.

20 Why is he listed as a co-author?

21 A. Like I said, this paper shows an innovative
22 diamond disk, what we call ADD. The full name of that
23 is advanced diamond disk. And that means that, in the
24 design of that, all the tips of those diamond particles
25 are facing upwards, and that diamond disk was provided

1 by Kinik, and I was using that to do my research.

2 Therefore, I put the name on that, on my
3 paper.

4 Q. Thank you.

5 I'm not interested in the technical details, I
6 just want to know, did you speak with or collaborate
7 with Dr. Sung on this paper?

8 MR. HA: Objection. Form.

9 THE WITNESS: (In English) No.

10 BY MR. CHAN:

11 Q. So why did you include his name again? Strike
12 that.

13 Did you tell him that you published this
14 paper?

15 A. (In English) No.

16 Q. Let me hand you what has been marked as
17 Exhibit 1045.

18 Counsel for petitioner marked this exhibit as
19 1045.

20 Do you remember this paper?

21 A. (In English) I don't remember.

22 Q. You don't remember this paper?

23 A. Uh-huh.

24 Q. How many authors are there on this paper?

25 A. Eight.

1 Q. What did you contribute to this paper?

2 A. I provided the data of my research when I
3 worked in Kinik.

4 Q. Who is the primary author of this paper?

5 A. The primary author is Dr. Sung, the first
6 author.

7 Q. Did you provide the data to Dr. Sung directly,
8 or did you provide the data to Kinik directly?

9 A. I think Kinik.

10 Q. Did you speak with or collaborate with
11 Dr. Sung on this paper?

12 A. (In English) No.

13 Q. Did you know that this paper was published?

14 A. (In English) No.

15 Q. Let me hand you what has been marked as 1046.
16 Have you seen this paper?

17 A. (In English) No.

18 Q. You have not seen this paper.

19 Who was the primary author of this paper.

20 A. Dr. Sung.

21 Q. What did you contribute to this paper?

22 A. I also provided my research data when I was
23 working with Kinik.

24 THE CHECK INTERPRETER: Check rendition: "My
25 contribution is still the experiment data from my

1 research when I worked with Kinik."

2 BY MR. CHAN:

3 Q. Did you provide the data to Kinik or to
4 Dr. Sung directly?

5 A. Kinik.

6 Q. Did you speak with or collaborate with
7 Dr. Sung on this paper?

8 A. (In English) No.

9 Q. Did Dr. Sung inform you about this paper?

10 A. (In English) No.

11 Q. Let me hand you what has been marked as
12 Exhibit 1047.

13 Do you remember this exhibit?

14 A. (In English) No.

15 Q. Now, there were several authors on this paper.
16 Are you familiar with any of those
17 individuals?

18 THE LEAD INTERPRETER: The witness wants me to
19 translate one of the names for him, Joe June Chiang
20 (phonetic).

21 THE WITNESS: Ying Tung Chen.

22 THE LEAD INTERPRETER: Y-i-n-g T-u-n-g
23 C-h-e-n.

24 THE WITNESS: I know this person.

25

1 BY MR. CHAN:

2 Q. Who is it?

3 A. Okay, he was a student when I was studying
4 Ph.D. degree. He was -- he's a student --

5 THE CHECK INTERPRETER: "More junior. He
6 joined the program later."

7 THE WITNESS: -- after me.

8 BY MR. CHAN:

9 Q. What did you contribute to this paper?

10 A. It's the same. I worked with Kinik. I
11 provided my experimental data.

12 Q. Who is the primary author on this paper?

13 A. Dr. Sung.

14 Q. Did you provide the data to Dr. Sung directly?

15 A. (In English) No.

16 Q. Did you speak with or collaborate with
17 Dr. Sung on this paper?

18 A. (In English) No.

19 Q. Did you know that this paper was published?

20 A. (In English) I'm not sure. I'm not sure.

21 Q. I'll hand you what has been marked as 1048.

22 Earlier, counsel for petitioner asked you a
23 few questions about this paper.

24 As a follow-up, are you the primary author of
25 this paper?

1 A. (In English) Yes.

2 Q. Is Dr. Sung one of the co-authors?

3 A. (In English) Yes.

4 Q. Did you speak with or collaborate with
5 Dr. Sung on this paper?

6 A. (In English) No.

7 Q. So why did you name Dr. Sung as a co-author?

8 A. Well, it's the same situation. This ODD, this
9 diamond disk was provided by Kinik, and also, the
10 concept was from them as well.

11 Q. Did you speak with or collaborate with
12 Dr. Sung on this paper?

13 A. (In English) No.

14 Q. Did you inform Dr. Sung about the publication
15 of this paper?

16 A. (In English) No.

17 Q. Let me introduce what has been marked as
18 Exhibit 1049.

19 Do you remember this paper?

20 A. (In English) I'm not sure. I'm not sure.

21 (In Chinese) I don't quite remember.

22 Q. Who was the primary author of this paper?

23 A. A student from National Taipei University of
24 Science and Technology. It seems that I met this person
25 when I was at Kinik.

1 Q. What was the contribution with respect to this
2 paper? What was your contribution?

3 A. According to my recollection, this student --
4 he was working with Kinik and he approached me to use my
5 instruments and equipment.

6 Q. Did you speak with or collaborate with
7 Dr. Sung on this paper?

8 A. (In English) No.

9 Q. Let me introduce what's been marked as 1037.
10 The title is "Single Diamond Dressing."

11 Do you recognize this paper?

12 A. Yes.

13 Q. Who is the primary author of this paper?

14 A. I was primarily authored by me, but Mr. Liao
15 is my advisor. Therefore, I put his name at the first
16 place.

17 Q. This paper was published in 2007, is that
18 correct?

19 A. Yes.

20 Q. Were you a Ph.D. student at that time?

21 A. Yes.

22 Q. Am I correct that the primary author of this
23 paper is your professor, Mr. Liao?

24 A. Well, most of the researches were done by me.
25 However, Mr. Liao -- Professor Liao is my teacher so I

1 put his name in front. And generally, in the academic
2 sector, we always do so.

3 Q. Now, I see two other names.

4 Can you confirm for me that they are Dr. Sung
5 and Mr. Pai that we talked about earlier today?

6 A. Yes.

7 Q. Mr. Pai was at the time the chairman of Kinik,
8 is that correct?

9 A. I believe so.

10 Q. What was his contribution to this paper?

11 A. Because they provided funding, so we put his
12 name on it.

13 Q. What did Dr. Sung contribute to this paper?

14 A. It's the same. They provided me some concept
15 and funding, so I put his name on it.

16 Q. Did you inform Dr. Sung and Mr. Pai about the
17 publication of this paper?

18 A. No.

19 Q. Now, I know there are other exhibits that
20 counsel for petitioner introduced during your earlier
21 deposition, but instead of just introducing all the
22 technical papers, let me just ask you a very simple
23 question.

24 In research and development, is it typical for
25 your name to appear as a co-author without you knowing

1 about it?

2 MR. HA: Objection. Foundation. Leading.
3 Form.

4 THE WITNESS: Back at that time, in that
5 period, I think it was frequently seen with this kind of
6 situation because sometimes if we used a person's
7 instrument or used his measurements, then we would like
8 to appreciate this person and we would like to put his
9 name on the paper to offer my -- the appreciation.

10 Back at that time, even everything was done by
11 you at the time, but you do have your professor, your
12 advisor, and you should -- you would put his name on
13 that.

14 THE CHECK INTERPRETER: "As the first author."

15 THE WITNESS: Because academic sector is
16 different from industrial sectors. In the academic
17 field, you need to publish papers in order to be
18 promoted, and where it's not needed in industry.

19 BY MR. CHAN:

20 Q. Have you ever published any paper involving
21 you and Dr. Sung, where you worked with Dr. Sung
22 directly?

23 A. Because I worked with Kinik, so, generally, I
24 would provide the result of my research to the people in
25 Kinik for them to use. But I do know internally what

1 was the situation in Kinik. I was only worked with
2 Kinik.

3 THE CHECK INTERPRETER: "I do not know" --

4 THE LEAD INTERPRETER: "I do not know."

5 THE CHECK INTERPRETER: -- "internally how
6 they used my research."

7 BY MR. CHAN:

8 Q. Have you personally worked for or worked with
9 Dr. Sung in your individual capacity?

10 A. No.

11 Q. Now, there are two other exhibits counsel for
12 petitioner introduced earlier. They are Exhibits 2006
13 and 2007. I don't know if you have those exhibits in
14 front of you.

15 MR. CHAN: Were they marked for this
16 deposition?

17 MR. HA: I don't remember. Any exhibits that
18 were already made of record, we did not remark for this
19 deposition.

20 MR. CHAN: That's okay.

21 BY MR. CHAN:

22 Q. So, earlier today, counsel for petitioner gave
23 you Exhibit 2006, and the title of the document is
24 "Dressing Characteristics of Oriented Single Diamond on
25 CMP Polyurethane Pad."

1 Do you remember that document?

2 A. Yes.

3 Q. And counsel for petitioner asked you a number
4 of questions on page 104 of that document, the
5 acknowledgment section.

6 Now, it says: "The author would like to thank
7 Mr. Y. L. Pai and Dr. Sung, of Kinik Company, for
8 providing the financial support."

9 Do you see that?

10 A. Yes.

11 Q. Did Mr. Pai provide you with financial support
12 directly?

13 MR. HA: Objection. Form.

14 THE WITNESS: The funding was provided by
15 Kinik Company. I think the owner of the company, who is
16 the chairman of the company, should provide the funding.

17 BY MR. CHAN:

18 Q. Did Dr. Sung provide you with financial
19 support directly in relation to this paper?

20 MR. HA: Objection. Form.

21 THE WITNESS: No.

22 BY MR. CHAN:

23 Q. Let me hand you what has been marked --
24 already marked as 1013. I don't know if you have
25 Exhibit 1013. See if it's in there somewhere. The

1 title of the document is "Effects of CMP Conditioner
2 Diamond Shape."

3 Well, I'll make this easier.

4 Counsel for petitioner asked a number of
5 questions about this paper with respect to the
6 acknowledgment, and I will read this for the record, and
7 it says: "The author would like to thank Kinik Company
8 and the National Science Council of the Republic of
9 China, Taiwan, for financially supporting this research
10 under Contract No. X. He is thankful to the general
11 manager, Dr. J. Sung and vice president Y. L. Pai for
12 the valuable suggestion and comments."

13 Did Mr. Pai provide you with any direct
14 financial support?

15 A. He was the chairman of the company, but I know
16 that the funding was provided by the company, and he was
17 the boss of the company.

18 Q. Did Dr. Sung provide you with any financial
19 support directly?

20 A. No.

21 Q. Let's switch gears for a little bit. We've
22 gone through a number of exhibits.

23 Now, counsel for petitioner asked you about
24 several patents, and for the record, they are '802, '862
25 and '270. And I will start out by asking you some

1 questions about '802.

2 Counsel for petitioner pointed out -- strike
3 that.

4 Let me show you '270. Counsel for petitioner
5 asked you whether you have reviewed columns 17 and 18,
6 and I believe you should have a copy of the '270 patent.

7 You can set those aside for now.

8 Now, when counsel for petitioner asked you
9 whether you have reviewed these two columns, you
10 testified that you reviewed them generally.

11 What does that mean?

12 MR. HA: Objection. Asked and answered.
13 Form. Leading.

14 THE WITNESS: As a research -- let me rephrase
15 that.

16 As a researcher, generally, we intend to look
17 at a lot of papers, and for that purpose, we do not look
18 at the entirety of each paper. We would look at the key
19 points of them and to see that what kind of contribution
20 this paper gives and where are the key points on this
21 paper. And then we would keep those key points. Then
22 we would carry on to look further. That's our tradition
23 and our habits.

24 So that is -- if that's the habit, I would
25 look at the most valuable place of the claims of a

1 patent, and then we will just generally look at other
2 places of the patent.

3 BY MR. CHAN:

4 Q. Did counsel for petitioner point you to which
5 part of columns 17 or 18 you did or did not review?

6 A. What I mean was that the important claims, I
7 reviewed them. Others, I was just generally look at
8 them.

9 Q. There are eight claims.

10 Did you review them in rendering your opinion?

11 A. Yes.

12 Q. Now, with respect to '862, that is the '862
13 patent, counsel for petitioner pointed you to columns
14 19, 20 and 21. I don't know if you have the '862
15 patent.

16 The last page, columns 19, 20, 21.

17 Again, did counsel for petitioner point out
18 what in columns 19, 20 or 21 you did or did not review?

19 MR. HA: Alex -- I want to make a note for the
20 record, you are bringing in exhibits that we introduced
21 that you are alleging should not be part of this
22 proceeding, so just wanted to make sure that is clear.

23 And I wanted to make -- ask you the question
24 whether you want to withdraw that email to the Board.

25 MR. CHAN: I'm not introducing an exhibit.

1 This exhibit is something he already talked about
2 earlier, in the earlier part of the discussion, when you
3 asked whether he reviewed columns 19, 20 and 21. So
4 that is within the scope of your deposition, it's not
5 something I introduced.

6 MR. HA: I didn't say you introduced it. I'm
7 saying you have objected to us introducing that, but now
8 I'm asking, are you waiving that objection?

9 MR. CHAN: No, if that's the case -- if that's
10 your position, I will withdraw the exhibit.

11 MR. HA: No. I'm just --

12 MR. CHAN: I'm only asking whether he reviewed
13 the claims in rendering his opinion. I'm not asking for
14 his opinion in this declaration with respect to '862.

15 MR. HA: I wanted to make sure I understand
16 your position.

17 MR. CHAN: Okay. Thank you for making clear.
18 I want to make sure we draw the boundaries so that we're
19 not running afoul of the issues --

20 MR. HA: All right, sounds good.

21 BY MR. CHAN:

22 Q. So can you clarify for the record, did you
23 review the claims for the '862?

24 A. I reviewed the claims. For the important
25 ones, I paid specific attention to them.

1 Q. Now, you recall you were asked about a phrase
2 called "integrated circuit fabrication and processes"?
3 Do you remember that phrase?

4 MR. HA: Objection. Form.

5 THE WITNESS: Yes.

6 BY MR. CHAN:

7 Q. Did he define it for you?

8 A. No.

9 Q. What is IC fabrication and processing? Do you
10 know?

11 Strike that. That's compound.

12 Without a definition, how did you respond to
13 his questions?

14 A. (In English) I don't remember. I don't
15 remember.

16 (In Chinese) I don't remember. When you say
17 "IC processing" -- can you repeat the question again?

18 Q. If you don't know the definition, how did
19 you -- how were you able to respond to counsel for
20 petitioner, about this phrase?

21 A. Well, based on my general understanding and
22 knowledge to IC.

23 Q. How many steps are involved in IC, in
24 fabrication and processing?

25 A. Many. Probably from -- for instance, from the

1 front sections, starting from growing the crystal wafer,
2 cutting the wafer and doing the abrasion and also start
3 to grow some devices on a wafer.

4 Many, many steps. For instance, you may have
5 steps of deposition, etching, ion implantation, masking,
6 et cetera.

7 Q. So would knowing ion implementation, etching,
8 deposition, for example, give you the knowledge of
9 designing and developing pad conditioners?

10 A. No.

11 Q. Speaking of knowledge -- speaking of
12 knowledge, you were asked whether you would like to
13 amend your declaration regarding the definition of a
14 POSITA.

15 Do you remember those questions?

16 A. Yes.

17 Q. For example, you provided a definition of a
18 POSITA in your '270 declaration, correct?

19 A. Yes.

20 Q. Now, earlier, you testified that a POSITA
21 would need at least a master's, a Ph.D. in mechanical
22 engineering or material science, is that correct?

23 A. Yes.

24 Q. And on top of that, you also need working
25 experience in designing and developing pad dressers,

1 correct?

2 A. Yes.

3 Q. Are you aware of any university in the world
4 that teaches diamond disk in undergraduate courses?

5 MR. HA: Objection. Hearsay. Speculation.
6 Form.

7 BY MR. CHAN:

8 Q. I'm asking just your personal knowledge.

9 A. I believe very few, or even none.

10 Q. Are you aware of any paper on diamond disk
11 written by a student with just a bachelor degree?

12 A. I never saw any paper like that.

13 Q. So with respect to your declaration in '270, I
14 want to make sure, for the purpose or clarity of this
15 record, that you now say you need at least a master's
16 degree or a Ph.D. degree in mechanical engineering,
17 material science or other relevant field of engineering,
18 in addition to two years of experience in designing and
19 developing CMP pad dressers.

20 MR. HA: Objection. Asked and answered.

21 THE WITNESS: Yes.

22 BY MR. CHAN:

23 Q. Now, with respect to the '270, counsel for
24 petitioner asked you some questions about Figure 1.

25 Do you remember that?

1 A. Yes, yes.

2 Q. And in particular, with respect to paragraph
3 58 of your declaration, you have a statement, and I'll
4 read this into the record.

5 It says: "The '270 patent focuses only on the
6 working particles."

7 Your declaration should be --

8 Do you recall that you were asked whether your
9 opinion that the 70 patent [sic] focuses only on the
10 working particles is based on Figure 1 of the '270
11 patent? Do you remember that?

12 A. Yes.

13 Q. So when you wrote this statement in paragraph
14 58 of your declaration, are you referencing the concept
15 covered by the '270 patent -- general concept of the
16 '270 patent?

17 MR. HA: Objection. Form.

18 THE WITNESS: Yes.

19 BY MR. CHAN:

20 Q. Counsel for petitioner asked you whether
21 Figure 1 shows the major point of the '270 patent.

22 Do you remember that?

23 A. Maybe yes.

24 Q. Let's try this.

25 Is this the only point? Is Figure 1 the only

1 major point of the patent?

2 MR. HA: Objection. Form. Leading.

3 THE WITNESS: No, no.

4 BY MR. CHAN:

5 Q. Did counsel for petitioner go through Figures
6 2, 3, 4 and 5 with you?

7 A. No.

8 Q. Now, let me ask you a little bit about working
9 particles, since counsel for petition asked you a number
10 of questions on that. My question is actually pretty
11 straightforward.

12 Now, in Figure 1 of '270, Claim 1 mentions the
13 highest protruding tip and the second highest protruding
14 tip.

15 Do you see that?

16 A. Yes.

17 Q. Did you testify the highest tip is a working
18 particle?

19 A. Yes.

20 Q. Is the second highest tip also a working
21 particle?

22 MR. HA: Objection. Asked and answered.

23 THE WITNESS: It depends. I did mention that
24 for that we need to look at the entire manufacturing
25 processes.

1 BY MR. CHAN:

2 Q. Very well.

3 Now, you testified to certain operating
4 parameters, and I will recite this verbatim. You
5 mentioned pressure, rotating speed, moving speed,
6 hardness and pH value.

7 Do you remember that?

8 A. Yes.

9 Q. Do you recall testifying that you don't need
10 to determine whether the highest or second highest
11 particle is a working particle based on these
12 parameters?

13 MR. HA: Objection. Mischaracterizes the
14 record.

15 THE WITNESS: I mentioned these parameters
16 because they are related with the wearing or falling off
17 of diamond particles.

18 BY MR. CHAN:

19 Q. Are you aware of any CMP conditioners that
20 only has one working diamond?

21 A. No.

22 Q. Are you aware of any CMP conditioners that
23 have only two working diamonds?

24 A. No.

25 Q. So at the time of the invention for '270, was

1 the objective to try to control the heights of only some
2 diamond tips on a disk or all diamond tips on a disk?

3 A. Control all diamond tips on the disk.

4 Q. Why? Strike that.

5 Why all the tips and not some of the tips?

6 A. At that time, we need to control the entire
7 diamond tips on a diamond disk. Otherwise, when they
8 contact the pad, you tend to have the warpage.

9 THE CHECK INTERPRETER: Check rendition:
10 "Because at that time we needed to control the entire
11 disk when a diamond disk is used, otherwise, the contact
12 between the pad and the disk would -- may result or
13 create in warpage."

14 THE WITNESS: In addition, controlling the
15 global diamond tips was the thing we would like to do at
16 the time.

17 BY MR. CHAN:

18 Q. Does global mean global distribution?

19 A. That means all diamond particles on the disk.

20 Q. Now, to identify which particle and working
21 particle, what equipment did you use to identify them?

22 A. There are many methods. The more precise one
23 is to use the optical approach. For instance, FRT to
24 scan the entire diamond profiles and heights, the
25 protrusion heights.

1 Second method is a substrate. We will paint
2 colors on that surface first, then we put that diamond
3 disk on the substrate and take it off. Then you would
4 see some tips will have the paint, the color.

5 The third method is, again, for a substrate
6 plate, we put a color on. Then we put the diamond disk
7 onto that and move around so that there are traces.
8 Some traces will be deeper, some traces will be a little
9 bit shallow.

10 Then, of course, there are the color on the
11 substrate. Therefore, the diamond particle also have
12 the color. And for that, we can identify approximately
13 the number of working particles.

14 Q. Thank you. That's more technical details than
15 I need, but this is very helpful.

16 With respect to paragraphs 63 and 64 of your
17 declaration, counsel for petitioner asked you a number
18 of questions in relation to Sung '479. In particular,
19 you were asked about what an RA value is.

20 Do you remember those questions?

21 A. Yes.

22 Q. Does the '479 application tell you what RA
23 value is, because I don't know what it is?

24 MR. HA: Objection. Form.

25 THE WITNESS: Yes.

1 BY MR. CHAN:

2 Q. Where?

3 I see he's pointing to RA.

4 But does it tell you what RA is?

5 A. No.

6 Q. So without knowing '479 -- looking at Claim 1
7 of the '479 -- counsel for petitioner went through this
8 with you.

9 Without knowing what RA is, for example, with
10 respect to Claim 1, where the RA value is less than
11 about 40 microns, how do you practice this invention?

12 A. Probably, it would be very difficult.

13 THE CHECK INTERPRETER: The witness said "I
14 don't know" first.

15 BY MR. CHAN:

16 Q. Now, counsel for petitioner also went through
17 Claim 1 with you of the '479 application.

18 Do you see Claim 1 right above Claim 2?

19 A. (In English) Yes.

20 Q. And he also asked you some questions about
21 Claim 28 in relation to something called a predetermined
22 height that is along a designated profile.

23 Do you remember that?

24 A. Yes.

25 Q. Let me ask you about Claim 1 first. There's a

1 limitation that says "brazing."

2 Do you see that word?

3 A. Yes.

4 Q. What does that mean?

5 A. It's a method or a type of alloy to join two
6 objects together.

7 Q. What conditions would help you determine the
8 brazing or brazing condition?

9 MR. HA: Objection. Beyond the scope of
10 direct -- or cross, sorry.

11 THE WITNESS: Generally, for doing the
12 brazing, you will need to have the alloy made of nitride
13 and chrome, also under a certain temperature and
14 pressure. Then you can join two objects together.

15 Sorry, nickel and chrome.

16 BY MR. CHAN:

17 Q. Did you say "chrome"?

18 A. Chrome.

19 Q. Chromium?

20 A. Chromium.

21 THE LEAD INTERPRETER: Let me rephrase that.

22 THE WITNESS: Generally, for doing brazing,
23 you need to have an alloy made of nickel and chromium,
24 plus, you need to have a certain temperature and
25 pressure. Then you can join two objects together.

1 BY MR. CHAN:

2 Q. Let me turn your attention to Claim 28.

3 Counsel asked you some questions about a predetermined
4 heights.

5 Does the '479 application tell you what that
6 predetermined height is?

7 A. No.

8 Q. Why do you need the height to practice the
9 invention?

10 A. Because you need to determine or decide what
11 sizes of a diamond particle you intend to use. You need
12 to have the height first in order to determine that.
13 Then you can continue.

14 Q. Now, right after that, it says "a designated
15 profile."

16 Does '479 tell you what a designated profile
17 is?

18 A. No.

19 Q. Does '479 tell you how to achieve a designated
20 profile?

21 A. No.

22 Q. Does the '479 application tell you how to
23 achieve predetermined heights, if you know?

24 A. No.

25 Q. So without information on how to achieve the

1 designated profile, no information about the
2 predetermined heights, how do you practice the invention
3 covered by the '479?

4 MR. HA: Objection. Leading. Argumentative.

5 THE WITNESS: Probably, it is not possible to
6 practice.

7 BY MR. CHAN:

8 Q. You recall you were asked about several
9 hypotheticals involving diamond disks. For example, you
10 were asked about hypotheticals involving two particles,
11 1,000 particles, the difference of two particles in
12 terms of height, and also the height difference between
13 those particles.

14 Do you remember those questions?

15 MR. HA: Objection. Vague.

16 THE WITNESS: Yes.

17 BY MR. CHAN:

18 Q. And do you recall you testified that you were
19 unable to answer these hypotheticals because, in your
20 experience, particles cannot have equal and identical
21 heights.

22 Am I correct in recalling your testimony?

23 MR. HA: Objection. Mischaracterizes prior
24 testimony.

25 THE WITNESS: Yes.

1 BY MR. CHAN:

2 Q. Now, counsel for petitioner still asked you to
3 respond to his hypotheticals, even though you had
4 already expressed to him that the premise that the
5 particles cannot have identical heights is impossible,
6 is that correct?

7 MR. HA: Objection. Mischaracterizes the
8 record.

9 THE WITNESS: Yes.

10 BY MR. CHAN:

11 Q. So if the premise or assumption is incorrect,
12 is your conclusion about those hypotheticals also
13 correct or incorrect?

14 A. Probably incorrect.

15 Q. Okay.

16 MR. CHAN: I pass the witness and reserve my
17 remaining time for any re-redirect.

18 With that, let's take a break, because I
19 understand the court reporter needs a break.

20 (A recess was taken from 12:07 p.m. to 12:13
21 p.m.)

22

23 FURTHER EXAMINATION

24 BY MR. HA:

25 Q. Dr. Tsai, welcome back. This is re-cross.

1 By parties' agreement, we get allotment of the
2 same amount of time as what Mr. Chan took for his
3 redirect. I don't think I'm going to take up the same
4 amount of time, but I will ask you a few quick
5 questions. Okay?

6 MR. CHAN: With the proviso that the re-cross
7 is limited to the scope of the redirect examination.

8 BY MR. HA:

9 Q. So Kinik funded your research, correct?

10 A. Yes, provided to Professor Liao.

11 Q. And without Kinik's funding, you could not
12 have completed your Ph.D., correct?

13 MR. CHAN: Objection to form. Argumentative.

14 THE WITNESS: We still had the funding from
15 National Science Council.

16 BY MR. HA:

17 Q. So you could have completed your Ph.D. without
18 Kinik's funding?

19 A. It could be pretty difficult because the tools
20 were provided by Kinik.

21 Q. And without Kinik's funding and tools, you
22 could not have published many of your papers, correct?

23 MR. CHAN: Objection. Form. Argumentative.

24 THE WITNESS: Well, then, it would be pretty
25 difficult for me to do so.

1 BY MR. HA:

2 Q. And Dr. Sung was a supervisor at Kinik,
3 correct?

4 A. Yes.

5 Q. And he held the title of general manager,
6 correct?

7 A. (In English) I don't remember. I don't
8 remember.

9 Q. And you testified -- and this is your own
10 words -- "In academic field, you need to publish papers
11 in order to be promoted."

12 Correct?

13 A. That's correct, generally, we need to publish
14 papers in order to be promoted.

15 Q. So these papers did, in fact, help you get
16 promoted, correct?

17 A. Some papers offered the help, but some not.

18 Q. Do you recall when counsel asked about what
19 the objective of the '270 invention was?

20 A. Yes.

21 MR. CHAN: Objection. Form.

22 BY MR. HA:

23 Q. And you said it's to -- and I will use your
24 own words -- "control all diamond tips on the disk,"
25 correct?

1 A. That was the goal at the time for us. That
2 was to control all diamond tips.

3 Q. You say "us," but you're not one of the listed
4 inventors on the '270 patent, correct?

5 A. I was focusing on the academic research only
6 at the time. I did not pay attention to the commercial
7 behaviors.

8 Q. Okay. Well, then, let the testimony that you
9 previously gave to your counsel as the accurate
10 testimony because it seems like you are misunderstanding
11 my question here.

12 Let me move on to my next set of questions.

13 Do you remember when your counsel asked you
14 about the value -- RA value in Sung '479?

15 MR. CHAN: Objection. Form.

16 THE WITNESS: Yes.

17 BY MR. HA:

18 Q. And do you remember your opinion -- you
19 testified that your opinion is Claim 2 is probably very
20 difficult to be enabled because you don't know what RA
21 value is?

22 A. Yes. That is one of them.

23 Q. Okay. But the fact of the matter is it's your
24 opinion that because you don't know what an RA value is,
25 Claim 2 of Sung '479 is not enabled, correct?

1 A. No, no, no, it's not correct. That was only
2 one of the points, one of the items.

3 Q. So is Claim 2 enabled or not?
4 Claim 2 of Sung '479.

5 A. (In English) I'm not sure.

6 Q. You're not sure if it's enabled?

7 A. (In English) I'm not sure.

8 Q. So you're changing --

9 A. It's probably not too easy to enable because I
10 don't know what RA value is. If I do know what RA value
11 is, then it would be more possible to enable.

12 MR. CHAN: If I can interject, I think he
13 said --

14 THE CHECK INTERPRETER: The first sentence, "I
15 think it would be quite unlikely to enable, because I
16 don't know what RA value is."

17 BY MR. HA:

18 Q. So it's your opinion it's quite unlikely that
19 Claim 2 of Sung '479 is enabled because you don't know
20 what RA value is, correct?

21 A. Well, I said that. That is only one of the
22 items. That is, if you even don't know what RA value
23 is, then it's very difficult.

24 THE CHECK INTERPRETER: Check rendition:
25 "That was just only one of the factors, but if you are

1 even -- if you even don't know other -- many other
2 factors, it would be even less likely to enable it."

3 BY MR. HA:

4 Q. So not knowing the RA value is an important
5 factor for your opinion that Claim 2 of Sung '479 is not
6 enabled, right?

7 A. There are many reasons --

8 THE CHECK INTERPRETER: "There are many
9 factors why the claim is not enabled, and not knowing RA
10 value is just one of them."

11 BY MR. HA:

12 Q. Okay. Would a POSITA know what an RA value
13 is?

14 A. I personally do not know what RA value is --
15 what RA value is in here, but personally, my guess is
16 that it probably means the surface roughness.

17 THE CHECK INTERPRETER: Check rendition:
18 "Personally, I do not know what RA refers to. But my
19 guess is that it's rough -- surface roughness."

20 BY MR. HA:

21 Q. So I'm not asking about your personal
22 knowledge, I'm asking whether a POSITA, around 2010-2011
23 time frame, would know what an RA value is.

24 A. Well, for a person who studied mechanical
25 engineering and also had the practical experiences in

1 doing the measurements, then he would know it. But this
2 patent does not describe that.

3 Q. So a POSITA would know what an RA value is, is
4 that correct?

5 THE CHECK INTERPRETER: "So for a person who
6 studied mechanical engineering, also had the practical
7 experience in doing the measurement, then he would know
8 about this. But since this was not explained -- the
9 meaning of this is not explained by this patent, I don't
10 know whether that was the meaning I was referring to."

11 The main interpreter is clarifying with the
12 witness. Obviously, we have a different understanding
13 of what the word --

14 THE LEAD INTERPRETER: Okay. If I can make a
15 correction on the last part of the check
16 interpreter's -- "this patent does not describe if RA
17 value is the surface roughness, so I wouldn't dare to
18 say so."

19 BY MR. HA:

20 Q. Okay. So it's your opinion that a POSITA
21 would understand what RA value is or would not
22 understand what RA value is when reading Sung '479?

23 A. This person can make a guess.

24 Q. So a POSITA can make a guess as to what RA
25 value is in Sung '479?

1 A. I can do that, but I don't know others.

2 Q. As an expert, do you think the term "RA value"
3 refers to surface roughness?

4 A. That is one way to express surface roughness.
5 It's a value to express that.

6 Q. And that RA value is often used to express
7 surface roughness in the field of CMP pad dressers,
8 correct?

9 MR. CHAN: Objection. Form. Argumentative.

10 THE WITNESS: Some people may use it to
11 express that, but it's just one of the ways to express
12 the surface roughness. There are many other ways.

13 BY MR. HA:

14 Q. But the term "RA value" is often used to
15 express surface roughness in the field of CMP pad
16 dressers, correct?

17 A. Yes.

18 Q. Okay. One last set of questions.

19 Do you remember when counsel discussed Exhibit
20 1042 with you? You're listed as a co-author on Exhibit
21 1042, correct?

22 A. Yes.

23 Q. But you said you were not aware that Dr. Sung
24 added you as a co-author on this paper, correct?

25 A. Yes.

1 Q. So without your permission, Dr. Sung took your
2 data, put it into a paper and published it, is that
3 correct?

4 A. Well, no, no, no, because we worked with Kinik
5 for the research, and therefore, that there are many
6 experimental data at Kinik, and they could use those
7 data to apply to their applications.

8 They are allowed to use those data because we
9 worked together for that. So I still want to emphasize
10 that's Kinik's.

11 MR. HA: No further questions.

12 MR. CHAN: Give me one second to see if I have
13 any redirect.

14

15 FURTHER EXAMINATION

16 BY MR. CHAN:

17 Q. I do have two follow-up questions.

18 Dr. Tsai, do you recall that you were asked
19 about whether you could have published your papers
20 absent funding from Kinik? Do you remember those
21 questions?

22 A. Yes.

23 Q. Have you written any papers that are not
24 funded by Kinik?

25 A. I have published more than 100 papers, so

1 there are quite a lot of them that were not funded by
2 Kinik.

3 Q. Now, earlier, you were also asked about
4 something called academic papers where you
5 would -- strike that.

6 You were asked whether you would need to
7 publish those papers funded by Kinik in order to be
8 promoted.

9 Do you remember that question?

10 A. Yes, I do.

11 Q. What do you mean by the word "promoted"?

12 A. That means, in academic sector in university,
13 if I am, for instance, an assistant professor or
14 associate professor, I want to be a full professor, I
15 need to publish papers in order to be promoted up.

16 Q. Now, counsel for petitioner suggested that you
17 couldn't have finished your Ph.D. but for your projects
18 funded by Kinik.

19 So using that scenario, without funding by
20 Kinik, would you have worked for any other companies?

21 A. At that time, we did have the funding from
22 National Science Council. And plus, if that was the
23 case, then our adviser would introduce other companies.

24 Q. So if Professor Liao -- the professor you
25 worked with -- runs out of money, would you still have

1 worked for him?

2 A. In order to graduate, I need to do.

3 Q. Did he have any research projects that are
4 not -- that were not funded by Kinik?

5 A. As I said, we also had fundings from National
6 Science Council, and also, he worked with many other
7 companies.

8 THE CHECK INTERPRETER: "Like I said, we had
9 fundings from the National Science Council, and also,
10 perhaps, he was still working with many other
11 companies."

12 MR. CHAN: No further questions.

13 MR. HA: Same here. That does it for the
14 deposition.

15 Congratulations, Dr. Tsai.

16 MR. CHAN: For the record, I will reserve the
17 right to read and sign.

18 I want to designate at least a portion of the
19 transcript confidential because it involves some of the
20 research that he did for Kinik.

21 I would also designate the transcript highly
22 confidential because some portions of the testimony was
23 with Kinik, which is in the contract, and that contract
24 has certain confidentiality provisions.

25 MR. HA: I cannot recall those portions, so

1 I'll just object for the moment, but we'll kind of work
2 that out.

3 MR. CHAN: That's fine.

4 MR. HA: Thank you.

5

6 (Off the record at 12:40 p.m.)

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ACKNOWLEDGMENT OF DEPONENT

I, MING-YI TSAI, do hereby acknowledge that I have read and examined the foregoing testimony, and the same is a true, correct and complete transcription of the testimony given by me and any corrections appear on the attached Errata sheet signed by me.

(DATE)

(SIGNATURE)

1 CERTIFICATE OF SHORTHAND REPORTER

2

3 I, Mark McClure, Certified Reporter within and
4 for the State of California, do hereby certify:

5

6 That MING YI TSAI, the witness whose
7 deposition is hereinbefore set forth, was duly sworn by
8 me before the commencement of such deposition and that
9 such deposition was taken before me and is a true record
10 of the testimony given by such witness.

11

12 I further certify that the adverse party,
13 Chien Min Sung, was represented by counsel at the deposition.

14

15 I further certify that the deposition of
16 MING YI TSAI occurred at National Chin Yi University of
17 Technology, No. 57, Section 2, Zhongshan Road, Taiping
18 District, Taichung City 411030, Taiwan, on Monday,
19 February 19, 2025, commencing at 9:01 a.m. to 12:40
20 p.m., Taipei Standard Time.

21

22 I further certify that I am not related to any
23 of the parties to this action by blood or marriage, I am
24 not employed by or an attorney to any of the parties to
25 this action, and that I am in no way interested,

1 financially or otherwise, in the outcome of this matter.

2

3 IN WITNESS WHEREOF, I have hereunto set my

4 hand this 2nd day of March, 2025.

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