

Exhibit 2011

1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 _____
4 TAIWAN SEMICONDUCTOR
5 MANUFACTURING COMPANY, LTD.

6 AND TSMC NORTH AMERICA CORP.,

Case Nos.

IPR2014-00818

7 Petitioners,

IPR2014-00819

IPR2014-00821

8 -vs-

IPR2014-00827

IPR2014-01098

9 ZOND, LLC,

10 Patent Owner.

11 _____
12 VIDEOTAPED DEPOSITION of DR. UWE KORTSHAGEN
13 Minneapolis, Minnesota
14 December 4th, 2014

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23
24 Reported by:

Amy L. Larson, RPR

25 Job No. 87858

1 APPEARANCES:
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 13 For: Zond, LLC
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 19 For: Taiwan Semiconductor Manufacturing
 20 Company Limited and
 21 TSMC North America
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 By: Gregory Huh, Esq.
 For: Taiwan Semiconductor Manufacturing
 Company Limited and
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 ///

1 APPEARANCES: (CONT'D.)
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 24 Renesas Electronics America, Inc.
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 ALSO PRESENT: Dean Hibben, Videographer

1 INDEX:
 2 EXAMINATION BY: PAGE
 3 Mr. Lahav.....8
 4 EXHIBITS MARKED FOR IDENTIFICATION:
 5 Exhibit 2004.....112
 6 Cathodic Arcs
 7 No Bates
 8 PREVIOUSLY MARKED EXHIBITS:
 9 Exhibit TSMC 1001
 10 U.S. Patent No. 6,853,142 B2
 11 No Bates
 12 Exhibit INTEL 1002
 13 Kortshagen Declaration - '759 Patent
 14 No Bates
 15 Exhibit TSMC 1003
 16 High-Current Low-Pressure Quasi-Stationary
 17 Discharge in a Magnetic Field
 18 Experimental Research
 19 No Bates
 20 Exhibit TSMC 1004
 21 U.S. Patent No. 6,190,512 B1
 22 No Bates
 23 Exhibit TSMC 1201
 24 U.S. Patent No. 7,147,759 B2
 25 No Bates
 26 Exhibit TSMC 1202
 27 Kortshagen Declaration - '142 Patent
 28 No Bates
 29 Exhibit TSMC 1204
 30 Ionization Relaxation in a plasma produced
 31 by a pulsed inert-gas discharge
 32 No Bates
 33
 34 Exhibit TSMC 1205
 35 U.S. Patent 6,413,382 B1
 36 No Bates

1 INDEX: (CONT'D.)
 2 PREVIOUSLY MARKED EXHIBITS:
 3 Exhibit TSMC 1216
 4 U.S. Patent 6,306,265 B1
 5 No Bates
 6 Exhibit TSMC 1221
 7 U.S. Patent 5,247,531
 8 No Bates
 9 Exhibit TSMC 1222
 10 European Patent Application
 11 No Bates
 12 Exhibit TSMC 1302
 13 Kortshagen Declaration - '759 Patent
 14 No Bates
 15 Exhibit
 16 Paper 13 - No Bates
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1 THE VIDEOTAPED DEPOSITION OF DR. UWE KORTSHAGEN,
2 taken on this 4th day of December, 2014, at The
3 Commons Hotel, 615 Washington Avenue, S.E.,
4 Minneapolis, Minnesota, commencing at
5 approximately 10:30 a.m.

6
7 PROCEEDINGS

8
9 THE VIDEOGRAPHER: This is video
10 number 1 in the deposition of Dr. Uwe
11 Kortshagen in the matter of Taiwan
12 Semiconductor Manufacturing Company, Ltd.,
13 et al., vs. Zond, LLC, in the United States
14 Patent and Trademark Office before the Patent
15 Trial and Appeal Board, numbers
16 IPR2014-00818, 00819, 00821, 00827 and 01098.

17 The deposition is being held at The
18 Commons Hotel in Minneapolis, Minnesota on
19 December 4th, 2014, at approximately
20 10:29 a.m. My name is Dean Hibben, I'm the
21 legal video specialist from TSG Reporting
22 Incorporated, headquartered at 747 Third
23 Avenue, New York, New York. The court
24 reporter is Amy Larson in association with
25 TSG Reporting.

1 DR. UWE KORTSHAGEN
2 Haynes & Boone representing Taiwan
3 Semiconductor Manufacturing Limited and
4 North -- TSMC North America and Fujitsu.

5 THE VIDEOGRAPHER: Anyone on the
6 phone, please?

7 MR. HOUSTON: Yes, Michael Houston
8 of Foley & Lardner representing Renesas.

9 MR. SILLIMAN: Michael Silliman of
10 Baker, Botts, LLC, on behalf of Toshiba.

11 THE VIDEOGRAPHER: And would the
12 court reporter please swear in the witness.

13
14 DR. UWE KORTSHAGEN,
15 a witness in the above-entitled action,
16 after having been first duly sworn, was
17 deposed and says as follows:

18 EXAMINATION

19 BY MR. LAHAV:

20 Q. Good morning.

21 A. Good morning.

22 Q. What did you do to prepare for this
23 deposition?

24 A. I, over the past two weeks, reread my
25 declarations and many of the references.

1 DR. UWE KORTSHAGEN

2 Will counsel please introduce yourselves.

3 MR. LAHAV: Etai Lahav of
4 Radulescu, LLP, representing patent owner
5 Zond.

6 MS. GRANOVSKY: Maria Granovsky,
7 Radulescu, LLP, representing Zond.

8 MR. GONSALVES: Gregory Gonsalves
9 representing Zond.

10 MR. FITZPATRICK: Anthony
11 Fitzpatrick from Duane Morris, LLP, on behalf
12 of Taiwan Semiconductor Manufacturing Company
13 Limited and TSMC North America.

14 MR. TENNANT: David Tennant of
15 White & Case, I'm here with my colleague
16 Brett Rismiller of White & Case, we are
17 representing Global Foundries U.S. Inc.,
18 Global Foundries Dresden Module One LLC & Co.
19 KG, Global Foundries Dresden Module Two LLC &
20 Co. KG.

21 MR. MCCOMBS: David McCombs
22 representing Taiwan Semiconductor
23 Manufacturing Limited, TSMC North America and
24 Fujitsu.

25 MR. HUH: Gregory Huh from

1 DR. UWE KORTSHAGEN

2 Q. Anything else?

3 A. I had breakfast this morning.

4 Q. In preparation for your deposition?

5 A. Yes.

6 Q. In order to be -- to have nutrition for it,
7 is that your statement?

8 A. Correct.

9 Q. Okay. Did you meet with any counsel in
10 preparation for your deposition?

11 A. I did.

12 Q. When?

13 A. We met on December 2nd, and I think we had a
14 number of discussions before that. I don't
15 at this point recall the exact dates.

16 Q. How long did you meet for on December 2nd?

17 A. Excuse me, can you repeat?

18 Q. Yes. How long did you meet for on
19 December 2nd?

20 A. Excuse me. I think we met for six hours
21 maybe.

22 Q. And with whom did you meet?

23 A. I met with the gentlemen who are here at the
24 table. So I met with Mr. Fitzpatrick,
25 Mr. Tennant, um --

1 DR. UWE KORTSHAGEN
 2 Q. Did you meet with everybody sitting on this
 3 other side of the table?
 4 A. At which side of the table?
 5 Q. The one opposite me.
 6 A. Correct, yes.
 7 Q. Okay.
 8 A. I'm not very good with the last names because
 9 we --
 10 Q. I don't know all their names either yet.
 11 A. Oh, okay.
 12 Q. Did you spend any time this morning preparing
 13 for your deposition?
 14 A. I spent about 20 minutes looking at some
 15 references, yes.
 16 Q. Immediately preceding this session; is that
 17 right?
 18 A. That is correct, and also maybe 20 minutes at
 19 home before I actually came here.
 20 Q. Do you recall how many telephone
 21 conversations you had to prepare for your
 22 deposition this morning before the meeting on
 23 December 2nd?
 24 MR. FITZPATRICK: Objection to the
 25 form.

1 DR. UWE KORTSHAGEN
 2 Q. Is there any other petitioner's counsel whose
 3 name you know who participated in a
 4 preparation session with you for this
 5 deposition on the phone?
 6 MR. FITZPATRICK: Objection to
 7 form.
 8 THE WITNESS: I think I remember
 9 that Larissa Park from Wilmer, Hale
 10 participated at one point. And I believe,
 11 I'm not a hundred percent certain, I believe
 12 that the gentleman from Foley & Lardner was
 13 present at one of the conversations via
 14 telephone.
 15 BY MR. LAHAV:
 16 Q. Any other names that you can recall?
 17 A. No.
 18 Q. Please turn to the Kudryavtsev reference. It
 19 should be in the pile in front of you.
 20 A. Yes.
 21 Q. In Kudryavtsev, in his experimental setup, so
 22 I'm not right now talking about the math, I'm
 23 talking about his experiment, there's no
 24 secondary electron emission; is that correct?
 25 A. I don't think that this is correct.

1 DR. UWE KORTSHAGEN
 2 THE WITNESS: I do not recall the
 3 exact number, no.
 4 BY MR. LAHAV:
 5 Q. Did you have telephone conversations to
 6 prepare for this deposition with anyone other
 7 than those sitting across from me at this
 8 table?
 9 MR. FITZPATRICK: Objection.
 10 THE WITNESS: Could you repeat the
 11 question, please?
 12 MR. LAHAV: Yes.
 13 BY MR. LAHAV:
 14 Q. Other than the people sitting across from me
 15 at this table, did you have telephone
 16 conversations with any other petitioner's
 17 counsel in preparation for your deposition
 18 this morning?
 19 A. I think I should mention that at some of our
 20 discussions there was a phone conference like
 21 this and other counsel did call in. I
 22 don't -- do not recall who actually called
 23 in. So just for correctness --
 24 Q. Okay.
 25 A. -- I want to state that.

1 DR. UWE KORTSHAGEN
 2 Q. Okay. What -- what is secondary electron
 3 emission?
 4 A. Secondary electron emission is a process by
 5 which electrons are released, for instance,
 6 at the cathode of a discharge system when the
 7 cathode is bombarded by energetic species
 8 such as ions.
 9 Q. In a sputtering apparatus, when we talk about
 10 secondary electron emission we are usually
 11 referring to emission from the target,
 12 correct?
 13 MR. FITZPATRICK: Objection to
 14 form.
 15 THE WITNESS: I think that the
 16 target is one of the electrons exposed to the
 17 plasma from which secondary electrons can be
 18 released.
 19 BY MR. LAHAV:
 20 Q. Isn't it the case that it is the main source
 21 of secondary electrons in a sputtering
 22 apparatus?
 23 A. I do not think that the question can be
 24 generalized like this. I believe that it
 25 depends on the specific layout of the

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