

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
AND TSMC NORTH AMERICA CORP.

Petitioner

v.

ZOND, LLC
Patent Owner

Case IPR2014-00821
Patent 6,853,142

ZOND LLC'S PATENT OWNER PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.107(a)

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 a. Kudryavtsev – A. A. Kudryavtsev and V.N. Skerbov, Ionization relaxation in a plasma produced by a pulsed inert-gas discharge, Sov. Phys. Tech. Phys. 28(1), pp. 30-35, January 1983 (Ex. 1106), 27

 b. Lantsman – U.S. Pat. No. 6,190,512 (Exhibit 1104) 29

 c. Mozgrin – D.V. Mozgrin, et al, High-Current Low-Pressure Quasi-Stationary Discharge in a Magnetic Field: Experimental Research, Plasma Physics Reports, Vol. 21, No. 5, pp. 400-409, 1995 (Exhibit 1103). 30

 d. Wang – U.S. Patent No. 6,413,382 (Exhibit 1105)..... 32

 2. The Petitioner Fails To Show That It Would Have Been Obvious To Combine The DC Power System Without Pulses Of Lantsman With The Pulsed Power System Of Either Mozgrin or Wang. 34

3.	The Petitioner Fails To Show That It Would Have Been Obvious To Combine The Cylindrical Tube System Without A Magnet Of Kudryavtsev With Either The Mozgrin or Wang Magnetron System.	40
B.	The Petition fails to demonstrate how the alleged combinations teach every element of the challenged claims.	45
1.	The cited references do not teach “a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly ionized plasma,” as recited in independent claim 1 and as similarly recited in independent claim 10.	45
2.	The cited references do not teach that “applying the electrical pulse comprises applying a quasi-static electric field across the weakly-ionized plasma” as recited in claim 13.	49
3.	The cited references do not teach a “selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to increase an ionization rate of the strongly-ionized plasma,” as required by dependent claim 14.	50
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I. INTRODUCTION

The Petition has represented in a motion for joinder that this petition “is identical to the Intel IPR no. IPR2014-00495 in all substantive respects, includes identical exhibits, and relies upon the same expert declarant.” Accordingly, based upon that representation, the Patent Owner opposes review on the same basis presented in opposition to Intel’s request no. IPR2014-00495, which is reproduced below:

The Board should deny the present request for *inter partes* review of U.S. Patent No. 6,853,142 (“the ’142 patent”) because there is not a reasonable likelihood that the Petitioner will prevail at trial with respect to at least one claim of the ’142 patent.¹

Indeed, there are six different and independent groups of reasons why the Petitioner cannot prevail. First, the references that are primarily relied upon by the Petitioner (*i.e.*, Mozgrin and Wang) were already considered by the Examiner and overcome during the prosecution of the application that led to the issuance of the ’142 patent. These references were considered by 6

¹ 35 U.S.C. § 314(a).

different examiners and overcome during the prosecution of 9 other patents that are related to the '142 patent over nearly a 10 year period.²

Second, all of the Petitioner's obviousness rejections are predicated on the false assumption that a skilled artisan could have achieved the combination of i) an ionization source generating a weakly-ionized plasma from feed gas, ii) an electrical pulse having a magnitude and a rise-time that is sufficient to increase the density of the weakly-ionized plasma to generate a strongly-ionized plasma, and iii) a gas line supplying feed gas to diffuse the strongly-ionized plasma to thereby allow additional power from the pulsed power supply to be absorbed by the strongly-ionized plasma, as required by independent claim 1 and as similarly required by independent claim 10 of the '142 patent by combining the teachings of either Mozgrin or Wang and

² Examiners Douglas Owens, Tung X. Le, Rodney McDonald, Wilson Lee, Don Wong, and Tuyet T. Vo allowed U.S. Patents 7,147,759, 7,808,184, 7,811,421, 8,125,155, 6,853,142, 7,604,716, 6,896,775, 6,896,773, 6,805,779, and 6,806,652 over Mozgrin and Wang over nearly a decade from the time that the application for the '759 patent was filed on 9/30/2002 to the time that the '155 patent issued on 2/28/2012.

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