

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 IPR2014-00827  
Patent 6,853,142

---

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

## **TABLE OF CONTENTS**

I. INTRODUCTION .....	1
II. TECHNOLOGY BACKGROUND .....	7
A. Overview Of Magnetron Sputtering Systems. ....	7
B. The '142 patent: Dr. Chistyakov invents a new apparatus containing an anode; a cathode positioned adjacent to the anode to form a gap there between; an ionization source for generating weakly-ionized plasma, and a pulsed power supply that produces an electric field across the gap to generate excited atoms in the weakly-ionized plasma and secondary electrons from the cathode, the secondary electrons ionizing the excited atoms, thereby creating the strongly ionized plasma. ....	8
C. The Petitioner Mischaracterized The File History. ....	12
III. SUMMARY OF THE PETITIONER'S PROPOSED GROUNDS FOR REVIEW .....	15
IV. PATENT OWNER'S CLAIM CONSTRUCTIONS. ....	16
A. The construction of "weakly ionized plasma" and "strongly ionized plasma." ....	17
V. THERE IS NO REASONABLE LIKELIHOOD OF PETITIONER PREVAILING AS TO A CHALLENGED CLAIM OF THE '142 PATENT. ....	19
A. The Petition failed to demonstrate any motivation to combine. ....	20
1. Scope and content of prior art. ....	22
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. 1304), ....	23
b. 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 1303). ....	25
c. Wang – U.S. Patent No. 6,413,382 (Exhibit 1305). ....	27
2. 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. ....	29
B. The Petition fails to demonstrate how the alleged combinations teach every element of the challenged claims. ....	35

1.	The cited references do not teach that “the power supply generates a constant power,” as recited in dependent claim 22.....	36
2.	The cited references do not teach “applying the electric field at a constant power,” as recited in dependent claim 33. ....	38
3.	The cited references do not teach “a pulsed electric field,” as recited in claim 25.....	40
C.	The Petition Failed to Identify Any Compelling Rationale for Adopting Redundant Grounds of Rejection Under Both Mozgrin and Wang. ....	42
VI.	CONCLUSION.....	45

## I. INTRODUCTION

The Petitioner has represented in a motion for joinder that this petition “is identical to the IPR Intel no. IPR2014-00497 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. IPR2014-00497 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.<sup>1</sup>

Indeed, there are five 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

---

<sup>1</sup> 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.<sup>2</sup>

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 anode; ii) a cathode that is positioned adjacent to the anode and forming a gap there between; iii) an ionization source generating a weakly-ionized plasma proximate to the cathode, and iv) a power supply that generates an electric field across the gap to produce a highly-ionized plasma, as required by independent claim 21 and as similarly required by independent claim 31 of the '142 patent by combining the teachings of Kudryavtsev with either Mozgrin or Wang.<sup>3</sup>

---

<sup>2</sup> 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.

<sup>3</sup> Petition at pp. 14-56.

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.