

UNITED STATES PATENT AND TRADEMARK OFFICE

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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GLOBALFOUNDRIES U.S., INC., GLOBALFOUNDRIES DRESDEN  
MODULE ONE LLC & CO. KG, GLOBALFOUNDRIES DRESDEN  
MODULE TWO LLC & CO. KG, and  
THE GILLETTE COMPANY,  
Petitioners,

v.

Zond, LLC.  
U.S. Patent No. 6,853,142  
IPR Case No. IPR2014-01098<sup>1</sup>

**PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT**

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<sup>1</sup> Case No. IPR2014-01016 has been joined with this proceeding.

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

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**The '142 Patent:**

GlobalFoundries U.S. Inc., GlobalFoundries Dresden Module One LLC & Co. KG, GlobalFoundries Dresden Module Two LLC & Co. KG, The Gillette Company, Fujitsu Semiconductor Limited, Fujitsu Semiconductor America, Inc., Advanced Micro Devices, Inc., Renesas Electronics Corporation, Renesas Electronics America, Inc., Toshiba America Electronic Components, Inc., Toshiba America Inc., Toshiba America Information Systems, Inc., and Toshiba Corporation

v.

Zond LLC

IPR2014-00818, IPR2014-00819, IPR2014-00821, and IPR2014-00822

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GlobalFoundries U.S. Inc., GlobalFoundries Dresden Module One LLC & Co. KG, GlobalFoundries Dresden Module Two LLC & Co. KG, and The Gillette Company

v.

Zond LLC

IPR2014-01098

## Overview

- Overview of the '142 Patent
- Grounds Instituted
- Overview of Prior Art
- Summary of Disputes and Responses Related to Independent Claims
- Summary of Disputes and Responses Related to Dependent Claims

# The '142 Patent



US006853142B2

(12) **United States Patent**  
Chistyakov

(10) **Patent No.:** US 6,853,142 B2  
(45) **Date of Patent:** Feb. 8, 2005

- (54) **METHODS AND APPARATUS FOR GENERATING HIGH-DENSITY PLASMA**
- (75) **Inventor:** Roman Chistyakov, Andover, MA (US)
- (73) **Assignee:** Zond, Inc., Mansfield, MA (US)
- (\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
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*Primary Examiner*—Wilson Lee  
(74) *Attorney, Agent, or Firm*—Kurt Rauschenbach; Rauschenbach Patent Law Group, LLC

(57) **ABSTRACT**

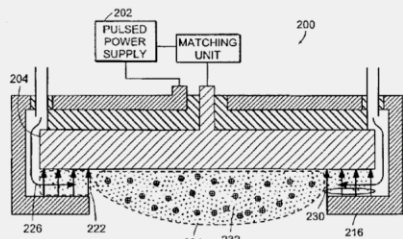
Methods and apparatus for generating a strongly-ionized plasma are described. An apparatus for generating a strongly-ionized plasma according to the present invention includes an anode and a cathode that is positioned adjacent to the anode to form a gap there between. An ionization source generates a weakly-ionized plasma proximate to the cathode. A power supply produces an electric field in the gap between the anode and the cathode. The electric field generates excited atoms in the weakly-ionized plasma and generates secondary electrons from the cathode. The secondary electrons ionize the excited atoms, thereby creating the strongly-ionized plasma

43 Claims, 13 Drawing Sheets

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- (52) **U.S. Cl.** ..... 315/111.41; 156/345.33; 118/723.1
- (58) **Field of Search** ..... 315/111.01-111.91; 156/345.21, 345.29, 345.33, 345.42, 345.44, 345; 204/298.06, 298.04, 298.08; 118/723 FE, 723.1, 723 MP; 423/210, 246, 248
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(10) **Patent No.:** US 6,853,142 B2  
(45) **Date of Patent:** Feb. 8, 2005

(54) **METHODS AND APPARATUS FOR GENERATING HIGH-DENSITY PLASMA**





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