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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LAM RESEARCH CORP., Petitioner, v. Daniel L. Flamm, Patent Owner.	U.S. Patent No. 6,017,221 Issued: January 5, 2000 Named Inventor: Daniel L. Flamm Title: Process Depending On Plasma Discharges Sustained By Inductive Coupling

DECLARATION OF MIYOKO TSUBAMOTO

I, Miyoko Tsubamoto, declare as follows:

1. I am employed as a communications specialist and senior designer print/web at the Electrical Engineering and Computer Sciences ("EECS") department of the University of California at Berkeley ("UCB"). If called upon as a witness, I could competently testify to the truth of each statement herein.

2. Attached as Exhibit A hereto is is a true and correct copy of the following article:

- Michael A. Lieberman and Richard A. Gottscho, *Design of High-Density Plasma Sources for Materials Processing*, UNIVERSITY OF CALIFORNIA, BERKELEY TECHNICAL REPORT NO. UCB/ERL M93/3 (JANUARY 11, 1993).

3. The technical report in Exhibit A exists in the UCB EECS database of technical reports and is publicly available through UCB library services.

4. The article's catalog number, M93/3, indicates that the article was published and made publicly available by UCB library services as a technical report in 1993.

5. The date of January 11, 1993 shown on the cover of the report shows the date of the article that was made publicly available in 1993.

Executed August 10, 2015, at Berkeley, California.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge.

Miyoko Tsubamoto

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EXHIBIT A

DESIGN OF HIGH DENSITY PLASMA SOURCES FOR MATERIALS PROCESSING

by

Michael A. Lieberman and Richard A. Gottscho

Memorandum No. UCB/ERL M93/3

11 January 1993

ELECTRONICS RESEARCH LABORATORY

College of Engineering
University of California, Berkeley
94720

DESIGN OF HIGH DENSITY PLASMA SOURCES FOR MATERIALS PROCESSING

Michael A. Lieberman
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ABSTRACT

In this review article, we focus on recent advances in plasma source technology for materials processing applications. The motivation behind new source development is discussed along with the limitations of conventional radio frequency diode systems. Then the fundamental principles underlying electron heating in electron cyclotron resonance, helicon wave, inductively coupled, helical resonator, and surface wave plasmas are discussed with some attention to design issues. The transport of ions to device wafers and its influence on etching anisotrophy is discussed for all sources. Similarly, we examine the benefits of using high density sources for minimizing plasma process induced damage and discuss in particular, the effects of plasma uniformity on charging damage.

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