



MARLANN MARINHO PATTERSON

MAJOR DEPT Materials Science

DEGREE Ph. D

ADVISOR Prof. Amy E. Wendt

RESEARCH AREA Plasma Diagnostics

GRADUATION 2004

KEY WORDS

Ion energy distributions, ion energy analyzers, rf filtering, thin film etching, thin film characterization, plasma-surface interactions, SEM, TEM, AFM.

GOALS

- Measure ion energy distributions at biased substrates and determine the relationship between type of bias and shape of distribution.
- Learn about ion-surface interactions and how ion energy distribution affects the etched film.

INTERESTS

Ion energy distributions (IED), relationship between type of substrate bias and resulting IED, plasma-surface interactions, etched film properties.

CONFERENCE TALKS/POSTERS

MM Patterson and AE Wendt, Poster - "Antennas for Large-Area, Inductively Coupled Plasmas", AVS, Seattle, WA (1999).

MM Patterson, T Lho, AE Wendt, and N Hershkowitz, Poster - "Antenna Configurations for Large Area rf Inductive Plasma Sources", AVS, Boston, MA (2000).

VISA STATUS

U.S. Citizen

Marlann Marinho Patterson (continued)

ADDRESS

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EDUCATION

06/04	PhD (expected) University of Wisconsin-Madison, Materials Science
06/00	MS (expected) University of Wisconsin-Madison, Materials Science
06/96	BS University of Florida, Physics

WORK EXPERIENCE

8/97-present	<p>University of Wisconsin-Madison, College of Engineering <i>Research Assistant</i> – Center for Plasma-Aided Manufacturing</p> <ul style="list-style-type: none">• design of new plasma chamber• familiarization with ion energy analyzers and measurement circuitry• programming of data acquisition software for ion energy analysis• participant in antenna design experiment• development of several large area, rectangular antennas• iterative development of Faraday shield designs for these antennas• initiation of experiments to understand physics of successful designs• successful collaboration with researchers based outside the US• rehabilitation of abandoned deposition chamber• familiarization with vacuum systems, as well as gas and water lines• familiarization and use of leak detection system
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- 8/96-6/97 **Bell Labs, Lucent Technologies**, Microelectronics Group
Member of Technical Staff-I – Multilevel Interconnect Development
- initiation and chairship of cross-departmental, team effort to identify and correct problems with pattern-dependent chemical-mechanical polishing, and prior processing
 - mentoring of summer student
 - plant wide presentation for a diversity project
 - editor of an employee group newsletter
- 5/95-8/95 **Lucent Microelectronics**, Madrid, Spain
OAP Summer Intern, Plasma Etch Group
AT&T Microelectronics
- 5/94-8/94 *OAP Summer Intern*, Plasma Etch Group
5/93-8/93 *OAP Summer Intern*, Metallization Group

HONORS AND AWARDS

7/97 Advanced Opportunity Fellowship

ACTIVITIES AND AFFILIATIONS

1/99-present Materials Science Student Advisory Committee
10/99-present American Vacuum Society
8/94-8/96 Sigma Pi Sigma Physics Honor Society