

24th Annual



**CONFERENCE
PROGRAM**

February 14-16, 2005

Santa Clara Convention Center
Santa Clara, CA

An
SPWCC Production

Sponsored by
BALAZS Analytical Services • AIR LIQUIDE

SPWCC 2005 Introduction

FROM THE CHAIRMAN:

In its 24th year, SPWCC has continuously evolved from just covering Ultra Pure Water to covering all processes involving "wet" chemicals. This evolution has captured the interest of many who are involved with wet processes whether it be UPW production and quality, chemical distribution and composition control, QC/QA testing, sources of contamination, etching, CMP, copper deposition, new film composition and above all, wafer cleaning after all wet processing steps.

This year we have had the greatest number of paper submissions in the history of the conference. All of these offer new research data and techniques for the processing of wafers in the semiconductor industry. Consequently, for the first time in the history of the conference we will be running two tracks simultaneously on Tuesday followed by the continuation of track 2 on Wednesday.

There is also an increase in the number of technical seminars which we believe will provide something of interest to anyone who attends. With our usual number of panels, keynote and guest speakers the conference is very full. I am looking forward to a very interesting and informative conference.

Marjorie K. Balazs, SPWCC Chairman

SPWCC 2005 Special Events

Tues Feb. 15 Lunch Sponsored by Mettler Toledo / Thornton, Inc.
Tues Feb. 15 Open House at Balazs Analytical Services / Air Liquide
Wed Feb. 16 Lunch Sponsored by SPWCC

SPWCC 2005 Technical Committee

- Marjorie K. Balazs, Chairman
- Steven Verhaverbeke, Applied Materials, Inc.
- Ken Morash, Mettler-Toledo / Thornton, Inc.
- Louise Massoni, Balazs Analytical Services / Air Liquide
- Berry S.R. Tseng, TSMC
- Srini Raghavan, U of Arizona
- Robert Small, B. Small Associates
- Beverly Newton, Dionex Corporation
- Karen Reinhardt, Cameo Consulting
- John DeGenova, Texas Instruments
- Jason Wang, Metara, Inc.

SPWCC 2005 Seminar Sessions

S1: Half Day Seminar Monday, Feb. 14, 2005 8:00 am - 12:00 pm

UPW Online Instrumentation and Calibration

Presented by:

Dr. Kenneth Morash and Mr. Victor Braga
Thornton, Inc.

This seminar is tailored for facility and QA personnel who are responsible for the maintenance and calibration of UPW online testing equipment. The course will cover such things as the measurement of conductivity, pH, dissolved oxygen, and flow. Calibration principles, design objectives including multi-parameter considerations, installation, maintenance, and trouble shooting will be presented.

S2: Half Day Seminar Monday, Feb. 14, 2005 1:00 pm - 5:00 pm

Calibration, Detection, and Quantization

Presented by:

Ms. Lynn Vanatta
Balazs Analytical Services/Air Liquid

This seminar will cover statistically sound techniques for calibrating analytical instruments and for calculating detection and quantization limits. The emphasis will be on practical applications. Several examples of actual data sets will be included. No prior statistical training is needed.

S3: Half Day Seminar Monday, Feb. 14, 2005 8:00 am - 12:00 pm

Fundamentals of BEOL Cleaning

Presented by:

Dr. Srini Raghavan, University of Arizona And Dr. Bob Small, B. Small Associates

This course will review the fundamental principles underlying the development of chemical solutions for back end cleaning. Topics will include solution composition and speciation, Pourbaix diagrams and polymer-solvent reactions.

S4: Half Day Seminar Monday Feb. 14, 2005 1:00 pm - 5:30 pm

Back Surface and Edge Contamination: An Industry Perspective

Organized by:

Ms. Karen Reinhardt

Cameo Consulting

The participants in this seminar will cover an Overview of the Industry's Requirements, by Steve Silverman; Back Surface Contamination and Removal; Back Surface Contamination Analysis; Back Surface Particle Analysis and Equipment, by KLA-Tencor; Yield Perspective from an IC Manufacturer; and a Panel Discussion with Q and A from the attendees.

SPWCC 2005 TUE UPW Track

TUESDAY, FEBRUARY 15, 2005

8:15 am Welcome and Announcements: Marjorie K. Balazs, SPWCC Chairman

8:30 am **KEYNOTE ADDRESS:** Stan Myers, President & CEO SEMI
Global Semiconductor Equipment and Materials Industry
Update

9:15 am Spiral Wound Electrodeionization
Avijit Dey, Omexell, Inc.

9:45 am Using Ozonated DI Water To Remove Particles In Semiconductor
Wafer Cleaning
Alan Walter, Akrion, Inc.

10:15 am **BREAK / EXHIBITS**

10:45 am UPW Dissolved Oxygen Control: Is It Needed?
John Rydzewski, Intel Corp.

11:15 am Low Level Dissolved Oxygen Measurement Technology
David Gray, Mettler-Toledo / Thonrton, Inc.

11:45 am Comparison Of Bacteria Enumeration Between A Filter Culture
Method And A Laser Scanning Cytometry Method
Janell Jenkins, Texas Instruments

12:15 pm LUNCH PROVIDED BY METTLER-TOLEDO/THORNTON, INC.

1:15 pm **PANEL: Sanitation Methodologies**
Chaired By Reinhard Hanselka

2:00 pm Determination Of Urea, TMA, IPA And Other Water-Soluble
Organic Compounds In UPW At The PPT-Level Using LC-OCD-OND
Stefan A. Huber, Doc-Labor

2:30 pm New Particle Monitoring Strategies In UPW For 300mm Fabs
Ed Terrell, Particle Measuring Systems

3:00 pm BREAK / EXHIBITS

3:30 pm Yield Enhancement Of Bonded Silicon Wafers By Point-Of-Use
Micro-Filtration And Purification Of DI Water During Chemical
Cleaning
Iqbal Bansal, M/A-Com, A Tyco Electronics Company

4:00 pm Determination Of Organic Acids And Inorganic Anions In
Semiconductor-Industry Reclaim Water
Lynn Vanatta, Balazs Analytical Services / Air Liquide

4:30 pm Ultrapure Water Production From Reclaimed Water
Bala Viswanath, Centre For Advanced Water Technology

5:00 pm ADJOURN

6:00 pm OPEN HOUSE BALAZS ANALYTICAL SERVICES / AIR LIQUIDE
(Transportation provided)

SPWCC 2005 TUE Chemical Track

TUESDAY, FEBRUARY 15, 2005

8:15 am Welcome: Marjorie K. Balazs, SPWCC Chairman

8:30 am **KEYNOTE ADDRESS:** Stan Myers, President & CEO SEMI
Global Semiconductor Equipment and Materials Industry Update

9:15 am Sector Field ICP-MS For The Direct Determination Of

Semiconductor Relevant Inorganic Contaminants In Inorganic Matrices

Julian Wills, Thermo Electron GmbH

- 9:45 am Identification And Quantification Of Molecular Contamination In Semiconductor Process Solutions
Jason Wang, Metara, Inc.
- 10:15 am BREAK / EXHIBITS**
- 11:00 am ITRS Liquid Chemicals Update
Kevin Pate, Intel Corp.
- 11:45 am Predictive Analysis Of Ceramics Holders For WF6 CVD Processes
Laurent Doyen, Balazs Analytical Services / Air Liquide
- 12:15 pm LUNCH PROVIDED BY METTLER-TOLEDO/THORNTON, INC.**
- 1:30 pm Solvent Based Single Pass Cu/Low-K Cleaning Process Development And Integration Into Dual Damascene Process Flow
Jianshe Tang, Applied Materials
- 2:00 pm Megasonic Frequency Investigation In Wet Process Applications
Roman Gouk, Applied Materials
- 2:30 pm Etch Behavior Of The Low-Temperature-Oxide In Wet Cleaning Of Silicon Wafer
Drew Sinha, SUMCO, USA
- 3:00 pm BREAK / EXHIBITS**
- 3:30 pm Effect Of Etchant Composition And Silicon Crystal Orientation On Etch Rate
Deborah Yellowaga, Honeywell Electronic Chemicals
- 4:00 pm Characterizing Etch Residue Removal From SiLK(r) Low-KILD Structures Using An Aqueous-Based Single Wafer Cleaning Process
John Moore, General Chemical West, LLC.
- 4:30 pm Selective Hafnium Oxide (HF02) Etchant
John S. Starzynsky, Honeywell Electronic Chemicals
- 5:00 pm ADJOURN
- 6:00 pm OPEN HOUSE BALAZS ANALYTICAL SERVICES / AIR LIQUIDE (Transportation provided)**

SPWCC 2005 WED Chemical Track

WEDNESDAY, FEBRUARY 16, 2005

- 8:30 am Welcome: Marjorie K. Balazs, SPWCC Chairman
- 8:45 am Don Grant, Invited Speaker
- 9:15 am Accurate Blending For Immersion And Intermediate Tank Wafer
Cleaning Systems
Gary Anderson, Tresark, Inc.
- 9:45 am Precision Point Of Use Blending For CMP And Post-CMP Cleaning
Chemicals
David Albrecht, Entegris, Inc.
- 10:15 am BREAK / EXHIBITS**
- 11:00 am Estimation Of Clean Room Quality By ICP Mass Spectrometry
Junichi Takahashi, Agilent Technologies, Inc.
- 11:30 am A Review Of Semiconductor Manufacturing Applications Using
Triazole-Based Inhibitors For Copper And Related Metals
Jonathan Marsh, PMC Specialties Group, Inc.
- 12:00 pm Real-Time Monitoring Of Copper Electrochemical Deposition
Process Chemistries
Qin Wang, Metara, Inc.
- 12:30pm LUNCH PROVIDED BY SPWCC**
- 1:45 pm Electrochemical Impedance Monitoring Of Copper Damascene
Chemistries
Alan Zdunek, Air Liquide Chicago Research Center
- 2:15 pm Continuous Monitoring Of Hydrogen Peroxide In The CMP Global
Loop
Todd A. Cerni, Particle Measuring Systems
- 2:45 pm Case Study Results Of A Real-Time, Point-Of-Use Liquid
Chemical Concentration Sensor
Ron Chiarello, Jetalon Solutions, Inc.
- 3:15 pm PANEL: Led by: Marjorie Balazs
Some Opinions On Wet Processing Now And In The Future
- 4:15 pm ADJOURN**

SPWCC 2005 Exhibitors

AQUAFINE Corporation

29010 Avenue Paine
Valencia, CA 91355
661/257-4770 Fax: 661/257-2489 800/423-3015

Partnering with market leaders throughout the world to help meet increasingly high stringent governmental regulations, environmental concerns and the rigorous demands of speeding progress, Aquafine Corporation has set the world standard for industrial UV water treatment with innovation, engineering and performance. Our TOC reduction, chlorine destruction, disinfection, and ozone reduction UV systems have earned a reputation for technology that customers can trust.

Balazs Analytical Services / Air Liquide

46409 Landing Parkway
Fremont, CA 94538
510/657-0600 Fax: 510/657-2292

Balazs' premier analytical services identify and quantify contaminants and their sources in Cleanroom Air, Gases, Components, Incoming Materials, Ultrapure, City, or Recycle Water, Chemicals, Processing Equipment, Wafers & Carriers, and Thick/Thin Films. We analyze everything contained or processed in clean-rooms to ensure process quality control and eliminate elemental & molecular contamination.

Dionex Corporation

1228 Titan Way
Sunnyvale, CA 94085
408/481-4272 Fax: 408/737-2470

Dionex will feature the ICS-2000 and DX-600 analytical instruments and DX-800 process analytical system. These Ion Chromatography systems offer the highest performance available for the analysis of trace ions in pure water and chemicals.

Entegris, Inc.

5155 East River Road
Minneapolis, MN 55421
763/502-0200 Fax: 763/502-0300 1-877/503-0200

Entegris will display its NT(r) Integrated Flow Controller with DeviceNet(tm) Communication, NT(r) Electronic Flowmeters, NT(r) Pressure Transducers, NT(r) Displays and the Espy(r) sensing and control product lines.

Hach Ultra Analytics

481 California Ave.
Grants Pass, OR 97526
541/472-6500 Fax: 541/479-3057 800/866-7889

The Anatel Ultrapure-50 provides 0.05-micron monitoring with an exceptionally low false count rate. Whether troubleshooting at point of use or monitoring UPW performance, Ultrapure-50 excels as an affordable one-box solutions featuring automatic sample flow regulation.

Levitronix, LLC

45 First Avenue
Waltham, MA 02451
781/622-5087 Fax: 781/622-5090

Levitronix LLC presents revolutionary fluid pump technology based on magnetic levitation, which allows for contact-free, and thus, particle-free operation. Levitronix' products are ideal for CMP slurry handling, metal plating processes, and high purity fluid transfer and delivery.

Malema Flow Sensors

1060 S. Rogers Circle
Boca Raton, FL 33487
408/970-3419 Fax: 408/970-3426 800/637-6418

Malema Flow Sensors and Levitronix LLC present precision flowmeters and magnetically levitated bearingless pumps along with related flow control components specifically designed for ultra high purity liquid handling applications.

Metara, Inc.

1225 East Arques
Sunnyvale, CA 94086
408/396-0383 Fax: 408/523-0945

Metara is a manufacturer of process chemistry metrology tools for semiconductor manufacturing. This includes tools for trace contamination measurement and tools for copper electrochemical deposition process control. These tools are fully automated, operator unattended and provide quantitative measurement.

Mettler-Toledo/Thornton Inc.

36 Middlesex Turnpike
Bedford, MA 01730
781/301-8643 Fax: 781/301-8701 800/510-PURE

Mettler-Toledo/Thornton develops and manufactures liquid process instrumentation and sensors for on-line measurement of resistivity, conductivity, TOC, dissolved oxygen, pH, flow and other analytical measurements for ultrapure water, hot DI, waste-water and chemicals.

Nippon Fusso USA, Inc.

3305 Depot Road
Hayward, CA 94545
510/259-0108 Fax: 510/259-0109

Specialized Applicator of custom Fluoropolymer coatings. PFA, FEP, ETFE and PTFE on Stainless Steel or mild steel, Aluminum, Quartz & Ceramic providing protection against corrosion & particulate contamination. Ideal for wet process equipment parts.

ResinTech, Inc.

1 ResinTech Plaza, 160 Cooper Road
West Berlin, NJ 08091
851/768-9600 Fax: 856/768-9601

Ion Exchange Resins, Activated Granular Carbon, Aries Cartridges, Portable Exchange Tanks, Resin Regeneration Services.

Technologies North America

971 University Avenue
San Jose, CA 95126
408/279-4455 Fax: 408/279-5055

TNA is the industry's premier source for semiconductor fabrication equipment and consumables. Products include photolithography equipment and materials, wafer

cleaning, high-purity chemicals, high-purity pumping systems, metrology equipment, CMP process equipment, consumables, spare parts and more.

SPWCC 2005 Contact Information

**2006
Will Be Our
25th Anniversary**



*SPWCC will celebrate it's 25th Anniversary in 2006!
Please contact Marjorie Balazs if you would like to
participate in the celebration of this event as a Special
Sponsor or Event Sponsor. Your company will be
included in our literature and on our web site.*

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