



# *MicroNews*

## Summer 2001 Newsletter of the Microbeam Analysis Society

<http://www.microanalysis.org/>

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### PRESIDENT'S MESSAGE

Dear MAS Members,

The Microscopy and Microanalysis 2001 meeting is rapidly approaching and promises to be an outstanding forum for providing the latest information on developments in microanalysis. Symposia of special interest this year will include "Microscopy and Microanalysis in the Real World," and "Atom Location by Channeling Enhancement of X-Ray and EELS Signals". In addition, there will be numerous regular and special sessions highlighting diverse applications and techniques in the biological and materials sciences, as well as the ever popular exhibit of commercial instrumentation and services related to microscopy and microanalysis. A special congress, "Imaging Life: From Cells to Whole Animals," in addition to several workshops and short courses will precede the meeting. The Long Beach Convention Center will provide an excellent venue, enhanced by a selection of social events in the Long Beach area to complement the technical sessions. Further details may be found in this issue of MicroNews, and we look forward to seeing you in August!

While at the M&M 2001 meeting, please make sure to attend the MAS Presidential Happenings Session on Tuesday evening that will feature Eric Doehne's presentation on "The Role of Microscopy and Microanalysis in Cultural Heritage Preservation." The talk will focus on examples of particular problems

in the deterioration of objects, architecture and archaeological sites. In addition, the 2001 MAS Presidential Awards will be presented, as well as citations for the best microanalysis papers from M&M 2000, and the MAS Distinguished Scholar Awards to honor student presenters at the Long Beach meeting.

The MAS Business Meeting will occur on Wednesday afternoon at the M&M 2001 meeting, immediately followed by the MAS Social for MAS members in the Hyatt Regency Long Beach. Remember to stop by the MAS Booth at the Long Beach Convention Center exhibit area to obtain your free ticket to the MAS Social and to pay your 2001 membership dues, if necessary.

It has been a pleasure serving the MAS membership this year as President. I know that Greg Meeker will do an excellent job as he begins his year as President following the M&M 2001 meeting. As always, I encourage you to contact the MAS Council members, as listed elsewhere in this issue, with any questions or suggestions regarding the activities of the Society.

Best regards,  
Rich Linton  
MAS President, 2000-2001

## EDITOR'S NOTE

With contributions from Peter Duncumb and Art Chodos (a former MicroNews editor) I have assembled a significant number of early MicroNews issues for the MAS archives. If you still have any old issues of MicroNews, especially those before 1980, please contact me. There are several issues that we need to complete the set.

As usual, I want to remind representatives of the Affiliated Regional Societies and the Sustaining Members to be sure that MAS has all the correct contact information. This is important for you as well as for us – to be sure that you receive communications from MAS.

Ryna Marinenko  
MicroNews Editor

## MEMBERSHIP SERVICES

As we look forward to another successful meeting in Long Beach I want to remind you to stop by the MAS booth to have your badge stamped for the MAS Social. Tickets to the social can be purchased for accompanying guests. You can also take this opportunity to let us know how we can improve our services or just to say “Hi.” The social is preceded by our business meeting which we encourage you to attend. One way we are trying to streamline our services will be to mail out the membership renewal forms earlier this year. This will help with our bookkeeping, especially for the M&M journal subscriptions. I strongly urge you to submit your renewal form as soon as it arrives to ensure receiving the journal without interruption. A reminder will be included in the Fall issue of MicroNews and I will send reminders on the MAS and MSA listservers as well. We are currently compiling changes to the membership's database since the directory was printed and working on a way to distribute the updated information to our members. We strive to provide personalized attention to our members and value your feedback so please do not hesitate to contact me about anything regarding your MAS membership.

Lou Ross  
Membership Services

## MAS TOUR SPEAKER PROGRAM

Wow! That is the busiest tour speaker year we have ever had with 4 speakers (one held over from last year) giving presentations at (lucky) 13 affiliated societies. In case your society still wishes to have a visit by one of the 2001 speakers (Bentley, Woodward, Hlava), they will be available until the end of the calendar year. Details at - <http://www.microanalysis.org/mas/masts/masts.html>.

The recent tour speaker visits are listed below.

Society	Speaker	Date
AIMS	Bentley	Feb. 22, 2001
AReMS	Hlava	Oct. 19, 2000
CoMAS	Hlava	Nov. 15, 2000
CSM&MS	Hlava	May 4, 2001
MAMAS	Bentley	Oct. 19, 2000
MMS – MN	Woodward	May 4, 2001
MMM-MI	Bentley	Oct. 20, 2000
MSNO	Bentley	May 15-17, 2001
MSORV	Hlava	May 11, 2001
NCSMMA	Anderson	Oct. 13-15, 2000
NESM	Hlava	Dec. 1, 2001
NMMBUG	Bentley	Feb. 26, 2001
SEMS	Bentley	May 23-25, 2001

Of course, the M&M2001 meeting is coming up and WE plan to meet on

**Tuesday, August 7, 2001  
at Noon  
in Room 104 of the Convention Center  
(a cold buffet LUNCH is provided by MAS)**

to choose next year's speakers. Who are WE? MAS ARES (Affiliated Regional Societies) representatives or their designated alternatives (please try to have at least one representative from your society attend – you don't have to be an officer, any member of your society will do). I'll have space for at least 40 and food for 50. In addition to choosing tour speakers, you will have the opportunity to meet with MAS council, learn about upcoming events, air problems, ask questions, and indicate (to council members) any interest in getting involved at the national level. See you then!

I would like every affiliated society to check their listing on the contact page - <http://www.microanalysis.org/mas/masas/masas.html> – and contact me with any corrections. I'm sure that there have been many changes so contact me by email (pflava@sandia.gov).

Paul Hlava  
Director of the Affiliated Regional Societies

## MEETINGS AND SHORT COURSES

### Meetings

**MICROSCOPY & MICROANALYSIS 2001**, Aug. 5-9, 2001, Long Beach, CA

Contact: Mary Rebedeau, Chicago: Fax (708)361-6166, email: [MSA@tradeshownet.com](mailto:MSA@tradeshownet.com), or web: [msa.microscopy.com](http://msa.microscopy.com)

**4th International Conference on Noncontact Atomic Force Microscopy(NC-AFM2001)**, Sept. 2-5, 2001, Kyoto, Japan

Contact: Y. Sugawara: Fax: +81-6-6879-7764, email: [sugawara@ele.eng.osaka-u.ac.jp](mailto:sugawara@ele.eng.osaka-u.ac.jp), or web: <http://www-e2.ele.eng.osaka-u.ac.jp/NC-AFM2001>

**5th Multinational Congress on Electron Microscopy**, Sept. 20-25, 2001, Lecce Italy

Contact: Dr. Massimo Catalano, email: [mcem5@ime.le.cnr.it](mailto:mcem5@ime.le.cnr.it), or web: [www.mcem5.unile.it](http://www.mcem5.unile.it)

**Eastern Analytical Symposium**, Sept. 30 -Oct. 4, 2001, Atlantic City, NJ, USA

Contact: EAS Hotline: Fax: +1 610 485 9467, email: [easinfo@aol.com](mailto:easinfo@aol.com), or web: [www.eas.org](http://www.eas.org)

**Interamerican Congr.on Elect. Micros.**, Oct. 7-11, 2001, Veracruz, Mexico

Contact: Dr. Jose Reyes-Basga, [jreyes@fenix.ifisicacu.unam.mx](mailto:jreyes@fenix.ifisicacu.unam.mx)

**NIST-MAS Special Topics Workshop, *Understanding the Accuracy Barrier in Quantitative Electron Probe Microanalysis and the Role of Standards***, Oct. 15-18, 2001, NIST; Gaithersburg, MD.

Contact: [dale.newbury@nist.gov](mailto:dale.newbury@nist.gov), (301)975-3921 or [ryna.marinenko@nist.gov](mailto:ryna.marinenko@nist.gov), (301)975-3901, FAX: (301)417-1321, or web: [www.nist.gov](http://www.nist.gov)

**EuroFE 2001**, Nov. 12-16, 2001, U. Alicante, Spain

Contact: [www.cmp-cientifica.com/eurofe2001](http://www.cmp-cientifica.com/eurofe2001)

**17th Australian Conf on Electron Microscopy**, Feb. 4-8, 2002, Adelaide, Australia

Contact: web: [www.adelaide.edu.au/CEMMSA/acem17/main.htm](http://www.adelaide.edu.au/CEMMSA/acem17/main.htm)

**AXAA 2002 Conference on XRF, XRD and Surface Analysis**, Feb. 11-15, 2002 Newcastle, NSW, Australia

Contact: Jane Yearman: Fax: 02 4984 2755, email: [axaa@pco.com.au](mailto:axaa@pco.com.au), or web: [www.pco.com.au/axaa2002](http://www.pco.com.au/axaa2002)

**AMAS VI - The 6th Biennial Symposium with SPM III - 3rd Scanned Probe Microscopy Conf**, Feb. 14-16, 2002, Sydney, Australia

Contact: web: [microscopy.org.au/symposium/symposium\\_homepage](http://microscopy.org.au/symposium/symposium_homepage)

**Art 2002, 7th International Conference on Non-destructive Testing and Microanalysis for the Diagnostics and Conservation of the Cultural and Environmental Heritage**, May 13-16, 2002, U of Antwerp (UIA), Antwerp-Wilrijk, Belgium

Contact: Art 2002 Secretariat; c/o University of Antwerp (UIA), Dept. Chemistry Universiteitsplein 1, BE-2610 Antwerp-Wilrijk, Belgium; Fax: +32-3-8202376, e-mail: [vantdack@uia.ua.ac.be](mailto:vantdack@uia.ua.ac.be) Website: <http://sch-www.uia.ac.be/art2002>

**MICROSCOPY & MICROANALYSIS 2002**, Aug. 4-8, 2002 Quebec City, Quebec, Canada

Contact: Mary Rebedeau, Chicago: Fax (708)361-6166, email: [MSA@tradeshownet.com](mailto:MSA@tradeshownet.com), web: [msa.microscopy.com](http://msa.microscopy.com)

**ICEM 2002 - 15th International Congress on Electron Microscopy**, Sept. 1-6, 2002, Durban, South Africa

Contact: Robin Cross, Fax +27 46 622 4377, email: [eurc@giraffe.ru.ac.za](mailto:eurc@giraffe.ru.ac.za), Internet: [www.ru.ac.za/affiliates/emu/icem2002.htm](http://www.ru.ac.za/affiliates/emu/icem2002.htm)

**MICROSCOPY & MICROANALYSIS 2003**, Aug. 3-7, 2003, San Antonio, TX

Contact: Mary Rebedeau, Chicago: Fax (708)361-6166, email: [MSA@tradeshownet.com](mailto:MSA@tradeshownet.com), or web: [msa.microscopy.com](http://msa.microscopy.com)

**MICROSCOPY & MICROANALYSIS 2004**, Aug. 1-5, 2004, Savannah, GA

Contact: Mary Rebedeau, Chicago: Fax (708)361-6166, email: [MSA@tradeshownet.com](mailto:MSA@tradeshownet.com), or web: [msa.microscopy.com](http://msa.microscopy.com)

### Short Courses

**Summer WDS Short Course on Electron Microprobe Analysis by Wavelength Dispersive Spectrometry**, July 16-18, 2001, MIT Electron Microprobe Facility, Cambridge, MA, USA

Contact: Nilanjan Chatterjee: Fax: (617) 253-7102; email: [e-probe-www@mit.edu](mailto:e-probe-www@mit.edu), or web: <http://web.mit.edu/e-probe/www/>

**McCrone Research Inst. Courses**

**Microtomy**, Sept. 5-7, 2001

**Adv. FTIR Microsc.**, Sept. 10-14, 2001

**Caking of Crystals**, Sept. 24-26, 2001

**Particle Isolation**, Nov. 5-9, 2001

**Scanning Electron Microscopy**, Nov. 12-16, 2001

Contact: Nancy Daerr, (312)842-7100, FAX: (312)842-1078, [mdaerr@mcri.org](mailto:mdaerr@mcri.org)

**Fundamentals of Asbestos Analysis by TEM**, Oct. 16-18, 2001, MVA, Inc., Norcross, GA  
Contact: Jim Millette, (770)662-8509

**Workshop on Quantitative Image Analysis**, Oct. 30 – Nov. 1, 2001, North Carolina State Univ, Raleigh, NC, USA

Contact: Cindy Allen: Tel: +1 (919)515 8171,  
[cindy\\_allen@ncsu.edu](mailto:cindy_allen@ncsu.edu), or web: <http://members.aol.com/IPCourse/> or <http://www.ncsu.edu/cpe>

### **Affiliated Societies' Meetings**

**AREMS**, visit web site for information  
<http://www.wise.virginia.edu/arems/>

**MMMS**, visit web site for information: <http://www.msa.microscopy.com/MSALAS/MMMS/MMMSHomePage.html>

### **MSNO**,

Contact: Valerie Woodward, (216)447-5408,  
[woodward@brk.bfg.com](mailto:woodward@brk.bfg.com). Web site: <http://www.msneo.org>

### **NCSEMMA**

Contact: Peter Ingram or Ann LeFurgey; email:  
[p.ingram@cellbio.duke.edu](mailto:p.ingram@cellbio.duke.edu) or  
[a.lefurgey@cellbio.duke.edu](mailto:a.lefurgey@cellbio.duke.edu)  
<http://152.3.167.174/NCAnnSymp2001.html>

**SEMS**, visit web site for information  
<http://www.biotech.ufl.edu/sems/>

## **NIST - MAS SPECIAL TOPICS WORKSHOP**

The MAS Special Topics Workshop, that is also part of the celebration of the NIST Centennial, will be held at NIST in Gaithersburg, MD, USA, October 15-18, 2001. It is titled *Understanding the Accuracy Barrier in Quantitative Electron Probe Microanalysis and the Role of Standards*. The planning committee is Dale Newbury and Ryna Marinenko. General information on the workshop can be found on the NIST web site, [www.nist.gov/conferences](http://www.nist.gov/conferences). Updated information on the tentative program has been sent out via email to those persons who expressed interest in attending. If you are interested and have not received the most recent information (sent 3/5/01 and 5/14/01), or if your email address has changed during the past three months, please notify Ryna Marinenko at [ryna.marinenko@nist.gov](mailto:ryna.marinenko@nist.gov). This meeting will be run on a very low budget as will be explained in the update information. There will be NO registration fee, but ALL participants will be REQUIRED to register. Professional meeting organizers will NOT be handling the meeting; therefore, all detailed information for registrants will be provided via email from Ryna or Dale or through the NIST web site. Note that we do not have a special web site for the workshop. We will be using the NIST web site for information about travel and hotel information. Also, if you would like to present a paper at the workshop, don't be shy. Contact Ryna with the name(s) of the author(s) and the title. All presentors will be required to come to the workshop with a manuscript of their presentation that is equivalent in length to at least six-pages, single-spaced in Times or equivalent 12 pt font for publication in the NIST Journal of Research. Manuscript preparation guidelines will be sent out to all participating authors.

A tentative program is below. Presentations may not be scheduled in the same order cited here. In fact, we expect that the Standards session (V) will be scheduled first, on Monday Oct. 15, because Ryna Marinenko has an ISO committee meeting that coincides with the workshop. The rearrangement will allow her to be present for the session she is organizing before going to the ISO meeting.

Dale Newbury  
Ryna Marinenko

# NIST-MAS Special Topics Workshop

## *Understanding the Accuracy Barrier in Quantitative Electron Probe Microanalysis and the Role of Standards*

October 15-18, 2001, NIST Gaithersburg, MD, USA

Tentative Technical Program - The sequence of presentations cited below will not be the same in the final program  
Format: Presentation/discussion/demonstration

Welcome and Introduction: Dale E. Newbury

### I. Defining the Problem

Eric Lifshin.

Accuracy in EPMA: The Industrial Viewpoint

Kurt F.J. Heinrich.

EPMA Quantitation at NIST: a Short History .

### II. Measuring the x-ray intensity. Instrumentation limitations.

WDS Measuring the X-ray Intensities. Performance of a Modern EPMA.

Chuck Herrington & Joseph D. Geller

Wavelength Dispersive Digital X-ray Counter Electronics... Beyond 50,000 CPS

Robert Myklebust.

WDS Spectral Fitting.

### EDS

Peter Statham.

Extracting Intensities.

Pierre Hovington.

Processing of low energy EDS spectra

Brendan Griffin.

Limitations on quantitative microanalysis in variable pressure SEM

### III. Processing the data: matrix corrections

John Armstrong.

Matrix corrections: comparison of methods:  
Database limitations

John Donovan.

Backscatter averaging in compounds- how should backscatter loss be calculated in the atomic number correction.

### IV. Future Directions

David Wollman.

Advanced x-ray spectroscopy: NIST microcalorimeter.

Jan Iwanczyk.

Advanced x-ray spectroscopy: Silicon Drift Detectors.

Raynald Gauvin.

Monte Carlo methods.

John Small.

Particles and Rough Surfaces.

Dale Newbury.

X-ray Microanalysis in Extreme Conditions: Low Voltage and VP-ESEM.

### V. Standards

Rollin Lakis.

Microanalysis Standards for the actinide elements with special emphasis on Ga-Pu alloys.

Paul Carpenter.

Characterization of Corning Glasses as Microanalysis Standards I.

Ed Vicenzi.

Characterization of Corning Glasses as Microanalysis Standards II.

Phil Picoli

The use of NBS SRM Glasses 610 and 612 as microanalysis standards for trace elements.

Greg Meeker.

Standards for the Analysis of Geological Materials.

John Hanchar

Preparation and characterization of single-crystal oxide standards, Zircon, Hafnon, Thorite, Uranite, and Coffinite for use as microanalysis standards.

and

Zircon single crystals doped with rare earth elements for microanalysis standards.

Gene Jarosewich.

Mineral Microanalysis Standards from the Museum of Natural History, Smithsonian Institution.

Ken Livi.

*Age-dating standards.*

Brendan Griffin.

Minerals and materials for calibration of electron and ion-based mineral dating

Guy Remond.

Polishing Techniques and implications in quantitative microanalysis

Robert Carlton & Charles Lyman.

Experience in using NIST SRM 482 for quantitative X-ray Spectrometry in the ESEM

Joseph D. Geller & Paul D. Engle

Sample Preparation Techniques for Electron Probe Microanalysis

Ryna Marinenko.

NIST Standards for microanalysis and the certification process.

Eric Windsor.

SRM 482. The Effect of Sample Preparation Artifacts on the Micro-Homogeneity of a Standard Reference Material



## M&M 2001 SOCIAL EVENTS

### **Sunday Evening Reception**

Dining and entertainment has been planned on the legendary Queen Mary. Live entertainment will include a wandering mariachi band, string quartet, magician in the banquet rooms, and a DJ playing a variety of dance music on the stern. Steeped in history and tradition, the Queen Mary is the grandest ocean liner ever built. During her illustrious career, she has played many roles—from elegant ocean liner to World War II troopship. All decks will be open so enjoy a stroll in the moonlight. Bus transportation will be provided between the Queen Mary and the Convention Center.

### **Baseball Game**

The Angels are in town! Tickets to see the Chicago Cubs play the Anaheim Angels on Tuesday evening, August 7, will be available via the website soon and at the hospitality booth on site. Transportation will be included.

### **Wednesday Evening Social**

The venue for the Wednesday Evening Social will be the motor yacht “*Spirit*” departing from Shoreline Village, Long Beach adjacent to the Convention Center. Live entertainment and a five-entry buffet will be provided during a leisurely cruise within the Long Beach and Los Angeles breakwater.

### **Annual Golf Tournament**

The Annual Golf Tournament will take place at the Meadowlark Golf Course in the heart of Huntington Beach.

### **Local Attractions**

Local attractions in the waterfront area include Queensway Bay, the Aquarium of the Pacific, Queen Mary exhibits, Pine Avenue restaurants, and golf.

### **Half-Day Trips**

Half-day trips to Los Angeles are recommended to tour Griffith Park – The Zoo/Observatory, the Getty Museum, the Los Angeles County Museum of Art (LACMA), or Hollywood.

### **Full-Day Trips**

Full-day trips outside the city are also possible including a cruise to Santa Catalina Island, and trips to Disneyland, Knott’s Berry Farm, or Universal Studios. Half-day or full-day sport fishing trips are also available from the 22<sup>nd</sup> Street Landing area.

### **Post Meeting Opportunities**

Post meeting opportunities include extended scenic tours along the California Coast or a cruise to the Mexican Riviera.

Updates to all information will be available at the Southern California Society for Microscopy and Microanalysis website at [www.scsmm.org](http://www.scsmm.org).

Bob Price, MSA Program Chair  
Edgar Voelkl, MSA Program Vice-Chair  
Inga Musselman, MAS Program Co-Chair  
Bob Koch, Local Arrangements Chair



## EXECUTIVE COUNCIL

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## HONORARY MEMBERS

L. S. Birks (Deceased)  
I. B. Borovskii (Deceased)  
Raimond Castaing(Deceased)  
Arthur A. Chodos  
V. E. Cosslett (Deceased)  
Peter Duncumb  
Charles E. Fiori (Deceased)  
Raymond Fitzgerald  
Theodore Hall (Deceased)  
K. F. J. Heinrich  
James Hillier

Joseph I. Goldstein  
L. L. Marton (Deceased)  
Robert E. Ogilvie  
Jean Philibert  
Stephen J. B. Reed  
Ryuichi Shimizu  
Gunji Shinoda (Deceased)  
Georges Slodzian  
Oliver C. Wells  
David B. Wittry

## ADDITIONAL MAS REPRESENTATIVES

### Accountant, Dues and Mailing List

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### Affiliated Regional Societies

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### Awards Committee for MAS 2000

**Raynald Gauvin & Richard Leapman** (see directors)

### Computer Activities Committee

#### John F. Mansfield

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#### Paul Carpenter

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### Conference Proceedings Inventory

**C. Susskind**; San Francisco Press, Inc.; Box 6800  
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(510)524-1000

### Corporate Liaison Committee

#### Thomas G. Huber

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### Finance Committee, Archivist & Historian

#### Gordon Cleaver

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### International Liaison

**Raynald Gauvin** (see Directors)

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### MAS-MSA Liaison, Nominations and President's Awards

**Richard Linton** (see President)

### Membership Services

#### Lou Ross

#### MAS Membership Services

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### Sustaining Membership Committee

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## AFFILIATED REGIONAL SOCIETIES

Format of the following list is:

Full Name (Acronym) (arranged alphabetically by full name)

Society URL

Contact (Position in that Society)

Address

Phone; FAX (only one number given indicates phone unless otherwise noted)

Email

Appalachian Region Microscopy Society (AREMS)

<http://www.wise.virginia.edu/cvc/arems/arems.html>

Thomas J. Hoppen (President)

MVA, Inc.; 5500 Oakbrook Parkway, Suite 200

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770-662-8509; 770-662-8532

[thopen@mvinc.com](mailto:thopen@mvinc.com)

Arizona Imaging and Microanalysis Society (AIMS)

[http://www.msa.microscopy.com/MSALAS/AIMS/](http://www.msa.microscopy.com/MSALAS/AIMS/AIMSHOME.HTM)

AIMSHOME.HTM

David Bentley (President)

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