MicroNews

Newsletter of the Microbeam Analysis Society

FALL 2010 WWW.MICROBEAMANALYSIS.ORG

INSIDE THIS ISSUE:

President's Corner

MAS President John Henry Scott

Dear Fellow MAS Member,

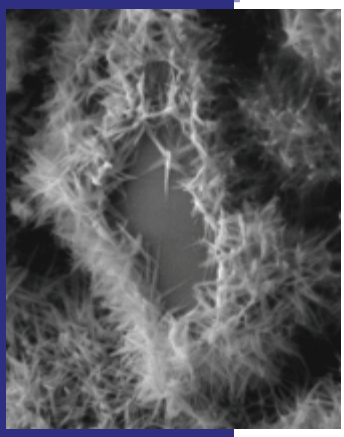
It was a pleasure to begin my year as President of MAS at the M&M 2010 meeting in Portland this summer, in part because of the high quality of the microanalysis content presented during the meeting, but also because it was clear that MAS remains a healthy and vibrant society. Over 1,700 conferees attended the meeting, including about 1,000 people working for vendors and exhibitors, and like the past few years we saw just short of 1,000 technical presentations, many of them authored by MAS members. Kudos to Brendan Foran, MAS Program Co-Chair, for assembling a rich and diverse collection of symposia with strong microanalysis themes. For several years running the programmatic content of the M&M meeting has been packed with topics of interest to MAS members, making M&M the world's premier annual microanalysis venue. I congratulate Brendan and the rest of the Program Committee on a job well done.

One of the pleasant duties of the MAS President at the summer meeting is to announce the winners of the society's annual awards. Our most prestigious award is the Duncumb Award for Excellence in Microanalysis (sponsored by Bruker Nano), a career achievement award recognizing outstanding contributions to our field over a sustained period of time. This year MAS bestowed the Duncumb Award on David Joy from the University of Tennessee and Oak Ridge National Laboratory for his superior technical accomplishments, leadership, and educational activities. David is one of the true wizards in our community and MAS is pleased to acknowledge his achievements with this award. This year's MAS Presidential Science Award went to John Donovan, Director of the Microanalytical Facility at the University of Oregon, for his well known contributions to quantitative x-ray analysis using wavelength dispersive spectrometry (WDS). The Kurt Heinrich Award, given annually to a promising early-career researcher, was given to Hendrix Demers from the University of Sherbrooke while Scott Wight from NIST was recognized with the MAS Presidential Service Award for his many years of unfailing work on membership services, computer activities, and several past MAS Topical Conferences.

With M&M 2010 now behind us I'd like to remind MAS members about important upcoming events. At the annual Business meeting the MAS Nominating Committee presented their slate of candidates for this winter's election. The following names were approved by the MAS leadership at the summer Council meeting and announced at the Business meeting: John Mansfield, University of Michigan, for President and Jeff Davis, NIST, for Treasurer; also announced were four names for the two Director positions, John Donovan, Brian Gorman, Robert Simmons, and Rhonda Stroud. Short biographies of the candidates are available in this issue of MicroNews and will be posted on the MAS website. Nearly half of the membership (48%) voted in last year's election—an amazing turnout compared with previous years—and I encourage you to keep up the momentum by completing the electronic ballot you will receive in the near future. An unfortunate consequence of bringing in new members to Executive Council is saying

Continued on page 3

Letter from the Editor by Heather Lowers



Al-rich mineral coating on mine waste. Image width is 2 μm.

With M&M 2010 behind us, it seems we're already preparing abstracts for M&M 2011. At the MAS business meeting, important issues were carried forward for the membership to vote on. Ian Anderson has summarized these issues on page 4. Also, Dan Kremser has included voting instructions on page 5.

A few new additions to MicroNews to check out are the Archivist's Corner by John Fournelle, Tips & Tricks, and Just for Fun. John Fournelle has been very busy accumulating and digging through the Society's history and interviewing our senior members. Tips & Tricks is for members to share an idea, sample preparation methods, instrument configuration and/or conditions, etc. that made that elusive image or analysis possible. Thanks to Carl Necker for kicking off this section. I've also included a Just for Fun section at the end as a reward for reading through the entire issue!

I'd like to thank all the members who contributed material for this issue. It really helped to reflect all members of our Society. I encourage everyone to submit material. It can be a personal biography, image, a Tip or Trick, meeting announcement, etc. Please send the material to micronews@microprobe.org.

Meet Karen Wright

As a relatively new member of MAS, I would like to take the opportunity to introduce myself to the MAS community.

After having been at Idaho National Laboratory for ten years, I have recently transferred from its Geology department to the Nuclear Fuels department to pursue full-time microprobe analysis of irradiated nuclear fuels. We have a JEOL 8900R EPMA, and have recently purchased a Cameca SX 100R EPMA. The SX 100R is a probe specifically designed for the analysis of highly radioactive materials, with denal shielding of the WDS detectors and stage, and non-standard geometry of the secondary electron and backscattered electron detectors. These modifications serve to reduce radiation damage to these parts, and to lower the background contribution from radiation. It is currently the only instrument of its kind in the United States.

MAS member Karen Wright enjoying a clear day near the Tetons.

My immediate challenges with this instrument include constructing actinide element standards, developing methods for it, and building the facilities necessary to maintain inert atmosphere for these sample types, which rapidly oxidize in air.

In my free time I enjoy cycling, skiing, hiking, and performing with a woodwind quintet.

If you would like to introduce yourself to other MAS members, please email a short biography and photo to micronews@microprobe.org to include in the next issue.

President's Corner Con't by John Henry Scott

farewell to outgoing members. Although still active as this edition of MicroNews is published, I'll take this opportunity to thank Treasurer Jim McGee, Past-President Cathy Johnson, and outgoing Directors Nicholas Ritchie and Stuart McKernan for their years of service to MAS. I am also indebted to my predecessor, Ed Vicenzi, for his strong leadership and vision for improving our society, and I look forward to his continued guidance in the role of Past-President.

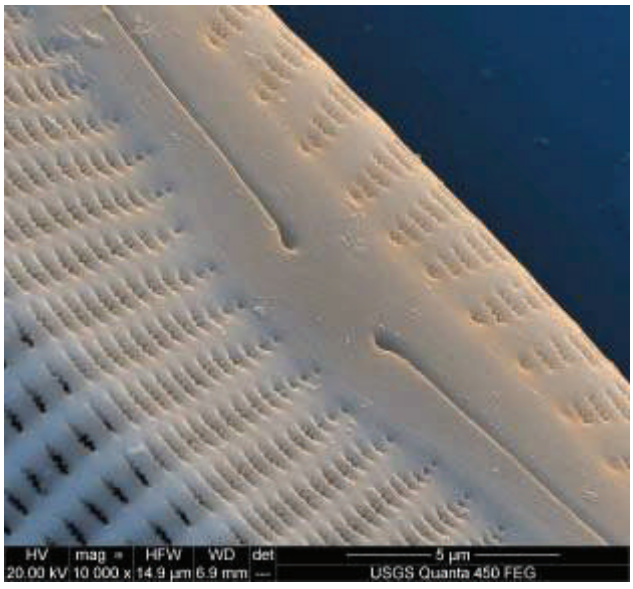
My own vision for improving MAS over the next year is centered around returning to the very first goals of the society: advancing our understanding of microanalytical science and technology and providing services of value to our membership. In the years since I served as an MAS Director, our society has undergone a striking transformation with significant positive changes on several fronts. First, we halted a dangerous downward trend in our membership numbers that, if left unchecked, predicted a shrinking of MAS beyond the point of no return. Now our membership is just above 400 members, a robust number that has proven stable for the last few years. Second, MAS redoubled its efforts to recruit and retain student members, finding new ways to increase both the amount and the quality of their interaction with our community. Between the years 2000 and 2005, MAS had an average of 11 student members on the rolls, with some years showing as few as five students. Thanks in large part to initiatives led by Past Presidents Ian Anderson and Paul Carpenter we now have 65 student members in good standing and much better support for students to attend our meetings and conferences. The third major accomplishment was to put our financial house in order. Our budget report for 2005 shows that during that year MAS spent $8,000 on society management and an additional $19,500 supporting MAS Council activities. By eliminating unneeded spending, shifting to modern information technology solutions such as teleconferencing and electronic voting, and leveraging the volunteer spirit of our members, MAS spent only $2,600 on society management and a mere $1,500 on Council activities in 2009. We are also in the midst of a series of changes to our Bylaws designed to solidify these gains and align our stated mission with the interests of our members. Collectively these changes have reinvigorated MAS in ways we are only beginning to realize, and they came only through the dedicated effort and hard work of many people – too many to thank here. These internal changes have transformed our society for the better and we are now standing on a much stronger foundation that just a few years ago.

In my term as President I hope to focus of our efforts less towards restructuring and once again to microanalysis and to the needs of our regular members. As a professional society in a technical field, MAS has the potential to be the world's go-to resource for microanalytical expertise, best practices, reference data, and downloadable tutorials and instructional material. Following the lead of other societies in chemistry, physics, and materials science, we could also serve as an aggregator and conduit for literature trends, emerging techniques, current events, and opportunities for collaboration – beyond what we already do through our meetings and Topical Conferences. All of these goals are designed to deliver value directly to our members, to supplement the many benefits members already enjoy by attending our meetings.

I look forward to serving MAS in the coming year, by implementing some of the exciting initiatives we have planned as well as to carry forward our rich history and traditional activities. Please do not hesitate to contact me directly (or other members of MAS Council) if you wish to participate or to share ideas, offer suggestions, or voice concerns.

Sincerely,

John Henry J. Scott



New diatom, *Encyonema nicafe, described from Idaho Rivers. Photo credit: Heather Lowers & Sarah Spaulding, USGS.*

"He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may cast."

— Leonardo da Vinci

Proposed 2010 MAS Bylaws Revisions

by Ian Anderson, Strategic Planning Committee

On the ballot in the 2010 election cycle in November, you will be asked to approve proposed revisions to the MAS Bylaws. Consistent with our Bylaws, these revisions were recommended by vote of MAS Council and presented for discussion at the 2010 MAS Business Meeting in August. The proposed revisions fall into three distinct categories, as summarized below; explicit revisions of the Bylaws can be found at http://www.microbeamanalysis.org/strategic-planning/mas-bylaws-revision-proposed-2010

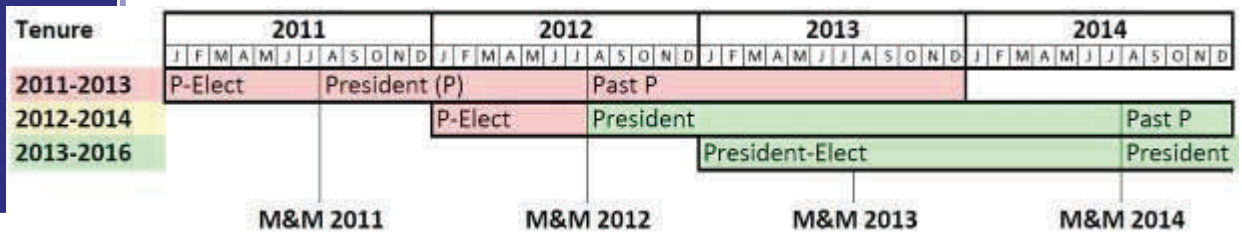
1. Society Name Change: Proposed that the name of society be changed from "The Microbeam Analysis Society" to "The Microanalysis Society"; associated revisions of the Bylaws would be incorporated to revise the mission focus from "microbeam instruments" to "microanalysis."

2. Executive Council Restructuring: Proposed that the term of the President be increased from one (1) year to two (2) years; correspondingly, the election of the President-Elect would occur only every other year; the President-Elect / President / Past President cycle would comprise four years, with one-and-one-half years as President-Elect, two years as President, and one-half year as Past President; there would thus be only two voting members of Council in the "President" cycle at any one time; the number of voting members of Council would decrease from the current eleven (11) to ten (10).

3. Miscellaneous Revisions: Proposed that (a) the qualification for Emeritus status be broadened to recognize longstanding Society membership, in addition to distinguished service to the Society; (b) that the terms of Appointed Officers be revised from four years to three years, in line with other appointments (e.g., Committee Chairs); and (c) that the definition of a nonprofit organization be updated to reflect the current legal revision of the Internal Revenue Code.

The restructuring of Executive Council will require a transition period, which is illustrated in the chart below. The President-Elect taking office in: (a) 2011 would serve three years according to the current 2007 Bylaws; (b) 2012 would serve three years comprised of the partial-year President-Elect term of the 2007 Bylaws and the two-year President term and partial year Past President term of the proposed 2010 Bylaws; and (c) 2013 would serve four years according to the proposed 2010 Bylaws. Starting in 2014, following the tenure of the last President elected according to the 2007 Bylaws, there would be only two Presidential office holders – a President and either a President-Elect or Past President – and the number of voting members of Executive Council would decrease from eleven to ten. Also, beginning in 2013, there will be no transfer of the office of President at the annual meetings in odd years.

These bylaws revisions are recommended by MAS Council and were overwhelming approved by the members present at the 2010 Business Meeting. We encourage members to vote "Yes" for all provisions!



Meet the Candidates

President Elect— John Mansfield

John Mansfield is the Associate Director and Laboratory Manager of the University of Michigan's North Campus Electron Microbeam Analysis Laboratory, where he has overseen the growth and development of that facility for the last twenty three years. He holds a PhD in Physics from the University of Bristol, England, with a specialization in metallurgical analytical electron microscopy. His research interests are broad and he currently is pursuing collaborations in nanoplasmonics and micro-characterization of the pigments in impressionist paintings.

John has been a member of MAS since the early nineties and has served the society in a number of capacities. He served on MAS Council as a director from 1994 to 1997, and was the Chair of the Computer Activities Committee for over a decade (1991-2003). He was instrumental in the creation and management of the first MAS Webpages and chaired a workshop prior to Microscopy and Microanalysis 1996 entitled "Microscopy & Microanalysis on the World Wide Web", an event that could be considered as MAS's first topical conference. John was an MAS touring speaker in 1996-7, with lectures covering the broad subject of "Applications of the Environmental Scanning Electron Microscope". John was the MAS Co-Chair for the 1999 Microscopy and Microanalysis meeting in Portland, Oregon. He has also served on the editorial board of the society's journal Microscopy and Microanalysis from 2004 to the present day and he is currently the Microanalysis Editor of the journal. John also has close ties to our sister society The Microscopy Society of America. He has served MSA in a number of positions: Physical Sciences Tutorial Chair 1995-98, Short Courses Organizer 1998-2003, Physical Sciences Director 2001-2003 and Education Committee Chair 2003-2006. John was the Program Chair of the Microscopy and Microanalysis 2010 Meeting in Portland, Oregon.

As President, John's close ties with both societies, and his intimate knowledge of their operation and histories, will allow him a unique perspective on how the two societies can collaborate, each to its own benefit and without detriment to either. He is committed to continuing to strengthen MAS by broadening of the scope of the society, such that scientists who employ the wide array of analytical techniques at the nanoscale, and beyond, can find their home within MAS. John is cognizant of the society's core focus on quantitative analysis and will ensure that it endures in any collaborations. John feels that the key to maintaining a healthy society is to continue to attract new members, principally student members and other young scientists early in their careers. He believes that student membership should continue to be very inexpensive and that the society should allocate the largest amount that it can afford to attracting high quality student researchers to the annual M&M meeting and at our topical conferences. He will seek to codify the regular succession of the MAS Co-Chair to M&M Program Chair. This happens quite frequently, but would strengthen MAS's role in the meeting if there was a guideline. John will endeavor to help to continue the strengthening of the MAS Topical Workshops and Conferences and further enhance our ties with the affiliated regional societies.

MAS Elections by Dan Kremser

Again this year, voting for the election of MAS Officers for terms beginning in 2011, and bylaws changes, will be held via online electronic voting beginning November 1 and running through December 1. At the end of October, Membership Services will send members an email to advise of the forthcoming email from Electionsonline.us who will provide you with a login, password and simple instructions for easy voting. If you prefer not to vote electronically, you may request a paper ballot by contacting Membership Services at dkremser@columbus.rr.com. A ballot will be sent to you via U.S. mail.

Meet the Candidates

Treasurer — Jeff Davis

Jeff Davis began his career at NIST as a summer student in 2000. After completing a Bachelor's and Master's degree in Civil Engineering at Clemson University with an emphasis in construction materials, he returned to NIST as a research engineer. His primary interests are X-ray microanalysis in both the electron probe and in the micro-focused XRF, cement and concrete durability, and forensic investigation of paints, pigments and works of art. Jeff enjoys working collaboratively with a variety of academic and US government institutions, where he contributes new and innovative methods for analyzing complex materials using X-ray microanalysis. He speaks incomprehensible Badish German, and in his spare time, he brews beer that is widely regarded as the best on Earth.

As a younger member of MAS, Jeff is interested in assisting the president and MAS council in maintaining the fiscally conservative policy that has provided for MAS's solvency for many years. He has some experience from college in developing and maintaining budgets, and is eager to learn from the more experienced members in the MAS. Jeff also hopes to expand upon the already generous programs MAS offers for students, and maintain active participation in topical conferences and the yearly meeting.

Director — Rhonda Stroud

Rhonda is Head of the Nanomaterials Section at the Naval Research Laboratory. She holds a Ph.D. in physics from Washington University in St. Louis ('96) and a BA in physics from Cornell University ('91). Her research focus is on the use of transmission electron microscopy to relate the nanoscale structure and chemistry of materials to materials properties and formation conditions. Materials she studies range from nanoparticles formed in supernovae to spintronic devices. Her past community service roles include MAS Tour Speaker, 2006-2007, and member of the External Review Committee for DOE Microscopy User Facilities at Oak Ridge and Lawrence Berkeley National Laboratories (2009).

As a Director, Rhonda would emphasize the key strengths of the society: topical conferences and affiliate society meetings, interdisciplinary symposia at M&M, and participation of members at all career stages from industry, academia and national labs. The best way for MAS to maintain healthy membership numbers is to continue to be the #1 forum for communication about the latest in microanalytical techniques across disciplinary and institutional boundaries. Our newly revitalized webpage and the Micronews letter do an excellent job of communicating the society happenings to the membership. To further promote the really cutting-edge work of our members, Rhonda would like to see a monthly "Meet a Member" feature on the website and/or social media sites. This feature would be a brief interview with a member that highlighted a recent publication or patent, and provided advice for new researchers considering a similar career path.

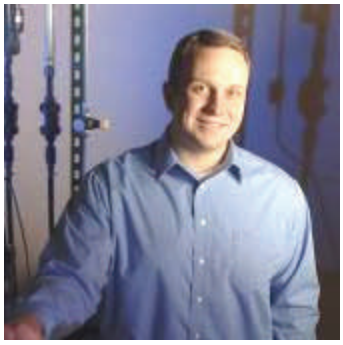
Director — Robert Simmons

Robert Simmons has been working in microscopy and microanalysis for over 30 years, and has been at Georgia State University for 28 years as Director of the Biological Imaging Core Laboratory. The lab serves not only the biological sciences but Chemistry, Physics and Geosciences as well. The wide range of materials provided by these different groups offers a great opportunity to experience a unique set of problems and solutions. His interests range from studies of the microbiological interface with the human environment to microanalysis of art glass materials and failure analysis of industrial glass products.

Robert has extensive experience with annual meeting production and society governance having been involved with the M&M meetings since 1998, has served 2 terms as president of the Southeastern Microscopy and one term as Director with MSA. He has served one term as Tour Speaker for MAS and will be returning for another tour in 2011.

He has a strong interest in promoting interdisciplinary communications among the various specialties that continue to develop in our field. Microscopy and analysis play important roles in a wide range of applications as well as basic research efforts in all of the sciences. Students and professionals should be encouraged to explore how they can contribute to and learn from seemingly disparate applications. Communication among microscopists of all disciplines, made possible through organizations such as MAS, will help ensure that future generations will benefit from the knowledge we have gained so far.

Meet the Candidates



Director— Brian Gorman

Brian is currently an Assistant Professor of Metallurgical and Materials Engineering at the Colorado School of Mines. He joined Mines after several years at the University of North Texas and the National Renewable Energy Laboratory, prior to which he worked at Texas Instruments and Los Alamos National Laboratory. Brian performed his undergraduate and graduate work in Ceramic Engineering at the University of Missouri – Rolla (now Missouri S&T), earning his Ph.D. in 2003. His current research areas lie at the intersection between TEM, atom probe tomography, and FIB instrumentation as applied to photovoltaics, dielectric ceramics, and materials for nuclear power. He first joined MAS in graduate school and was always impressed by the collegiality and sense of community extended to him by fellow members, which he would like to pass on in his role as a Director.

Brian considers himself a perpetual educator, and would hope to extend these same interests to the MAS community. Previously, the Society has done an excellent job of engaging students through scholarships, awards, and topical conferences, and these have resulted in increased student activity within MAS. These efforts should be continued and further strengthened through activities currently ongoing. Brian also believes that students at all levels could become more engaged (and educated!) in microanalysis through online materials, using the enormous strengths of the MAS membership. The benefits of such online educational materials to MAS would ultimately be increases in membership and visibility throughout the scientific community. Next generation microbeam analysts would also benefit from online interactions and professional networking that could be centered on the Society website, again with the goal of increased education and increased involvement in the MAS.

Director — John Donovan

John has been director of the MicroAnalytical Facility at the University of Oregon since 2002 and is also president of Probe Software, Inc. a company that distributes software for Electron Micro Probe Analyzer (EPMA) acquisition, automation and analysis. John's professional work has focused on improving the theory and practice of quantitative analysis particularly in the areas of spectral interferences, peak shape and shift characterization, matrix corrections, background modeling, secondary fluorescence from adjacent phases and time dependent intensity (TDI) corrections for beam sensitive samples. His most recent work involves characterizing and correcting for systematic artifacts in wavelength dispersive x-ray (WDX) continuum by means of quantitative blank corrections and iterative multi-point background acquisition and regression methods for improving the accuracy of trace element analysis. John is also very active in the public promotion of science and gives many presentations on various scientific topics to general audiences and teaches a popular freshman seminar every fall at the University of Oregon on critical thinking entitled "Weird Science".

A primary goal of John's dual academic and business efforts has been to bring micro-analytical researchers and vendors closer together so that new ideas and techniques from all sources can become implemented in ways that users find powerful, flexible, automated and easy to use in the laboratory. Being both a customer and a vendor himself, as MAS director he would seek to further improve and enhance the connections between these two vital spheres of scientific activity in the MAS.

Director candidates listed in reverse alphabetical order for page formatting purposes.

2010 Award Winners

MAS Distinguished Scholar Awards

Peter J. Felfer - University of Sydney, Australia
Atomic Resolution Grain Boundary Analysis using Atom Probe Tomography

Kameswaran Jai Ganesh - University of Texas at Austin
Automated Local Texture and Stress Analysis in Cu Interconnects using D-STEM and Precession Microscopy

Julia A. Mundy - Cornell University
Spectroscopic Imaging of a Statistically Significant Ensemble of Pt-Co Nanoparticles by Aberration Corrected STEM

Philippe T. Pinard - McGill University, Canada
An API/GUI for Monte Carlo Simulation of EPMA Spectra using PENELOPE

Michael Robinson - University of Washington
3D Cellular Imaging using Time-of-Flight Secondary Ion Mass Spectrometry

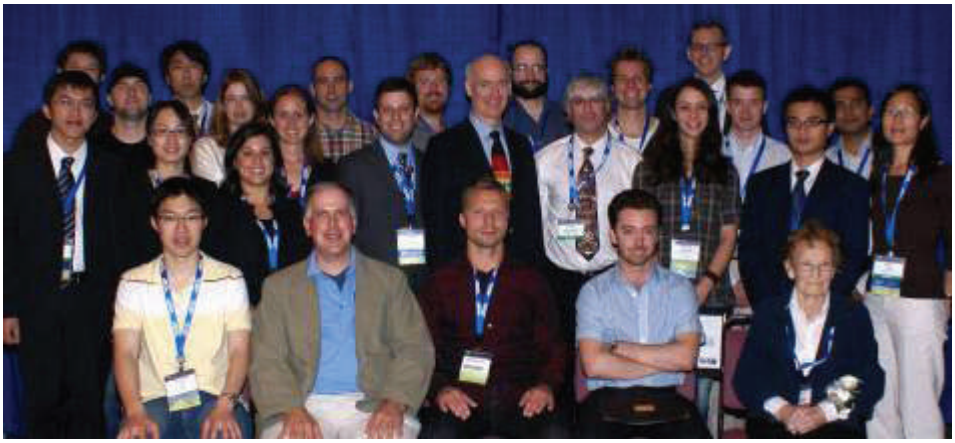
Presidential Service Award Scott A. Wight

Presidential Science Award John J. Donovan

K.F.J. Heinrich Award Hendrix Demers

The Duncumb Award (sponsored by Bruker Nano) David C. Joy

http://www.bruker-axs.de/news_article.html?&tx_ttnews[tt_news]=202&cHash=de01778197



MAS, MSA, and MSC student award winners at the M&M 2010 meeting. Photo courtesy of the Microscopy Society of America.

Call for Paper Nominations

If you have read or saw a presentation at the M&M 2010 meeting that should be considered for an award, please email the nomination to awards@microprobe.org. Please include which category the paper should be considered for and your reason for the nomination.

MAS has four Outstanding Paper awards categories...

Castaing Award *sponsored by Cameca*: Best Student Paper

Birks Awards *sponsored by JEOL*: Best Contributed Paper

Cosslett Award *sponsored by MAS*: Best Invited Paper

Macres Award *sponsored by Oxford*: Best Instrumentation/ Software Paper .

Archivist's Corner by John Fournelle

This will be a quasi-regular column in the newsletter to recount memorable occurrences from the organization's past. I urge 'old timers' to send in recollections and photographs (hard copies OK, I'll scan them and return originals to you).

As our organization today is considering a name change, let me focus on the "naming" process in the old days. At the December 1966 meeting of the steering committee to consider forming a national organization, 8 possible names for the organization were initially suggested: Society for Electron Microprobe Methods; Society for Special Methods in Microanalysis; Electron Probe Applications Society; American Society for Electron Microprobe Methods. These 4 names were removed from the vote (apparently no one present favored any of these). So the vote came down to: American Electron Microprobe Society (1 vote?); Electron Probe Microanalysis Society of America (1 vote?); American Society for Electron Probe Microanalysis (3 votes); Electron Probe Analysis Society of America (6 votes). EPASA was thus the recommended name. So when the organization was incorporated in 1968, it was EPASA.

Fast forward to the EPASA annual business meeting of July 22, 1970: under "new business" is noted: "The possibility of a change in the name of the society was discussed. L.S. Birks proposed SEIOXEIMSCORT. Other suggestions were: Microanalysis Society of America and Small Area Analysis Society of America." (no context for this given in the minutes; any of the founding members recall this?)

Minutes of Exec. Comm. Meeting July 28, 1971: "The question of renaming the society was again discussed. A committee of Beaman, Goldstein and Vasamillet was set up to investigate or recommend a more suitable name. Chief opposition to the present name appears to be the limitations imposed by electron probe and America."

And so at the July 12, 1972 Exec. Committee meeting, 25 possible names suggested by the members (in a questionnaire) were listed, with the comment "Best so far by popular opinion: Solid State Microanalytical Society, Microbeam Analysis Society, Microanalysis Society, Society for Electron and Ion Beam Microanalysis: followed by 21 others with permutations of Micro, beam, electron, analysis, ion, imaging, solids, surfaces, etc. The Beaman-Goldstein-Vasamillet committee reported: "None of the proposed new names have evoked much enthusiasm. The one name that has met with a minimum number of objections is MICROBEAM ANALYSIS SOCIETY. Two others that also have merit are: SOCIETY FOR ELECTRON AND ION BEAM MICROANALYSIS and MICROANALYSIS SOCIETY. The word international could be added to any of the above names. We submit these 3 as candidates for a new name for EPASA."

In an undated letter from President Beaman to Exec Comm members apparently late in 1972, he wrote: "The Society name change should be finalized soon, since our present one does not encompass our spectrum of activities. Because we seem to be selecting the least offensive name from the many suggested, little enthusiasm for making the change has been observed. The most popular candidates at last year's meeting (150 votes) were Microbeam Analysis Society and Society for Microbeam Science and Technology. Should we put these plus a couple of others on the next ballot or simply select one for submission to the membership via a change in the by-laws? ... We need to become more aggressive in our plans to expand our sphere of influence into the areas of scanning microscopy, ion probe analysis, and surface analyses. Our SEM program is limited when compared to the IITRI [IL Inst Tech Res Inst] conference. The ion probe sessions at the Pittsburgh Conference are considerably more extensive and meaningful than any we've had at EPASA. There is also a surface session planned for Pittsburgh. What can we do to make IMA, SEM, ESCA, etc become vital parts of EPASA? I believe that one good approach is to stimulate interest and participation at the user group level."

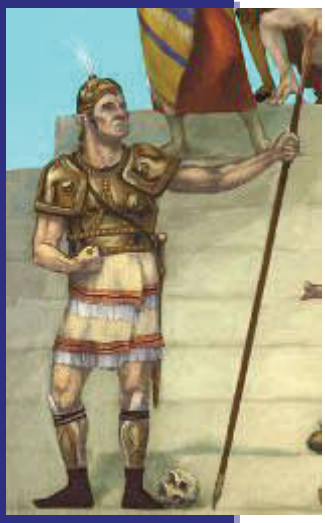
Conference Call April 19, 1973, exec council: "Moved by Lublin, seconded by Brown, that the name Microbeam Analysis Society be submitted to the membership on the 1973 ballot. The motion was approved."

And so the membership approved the by-laws name change to MAS in a mail in vote in October 1973, and at the Dec 13, 1973 exec. comm. conference call, people began to refer to the organization as MAS.

I encourage contributions: contact me John Fournelle, UW-Madison Geoscience, 1215 W. Dayton St., Madison WI 53706. johnf@geology.wisc.edu or 608-438-7480.

More from the archives on page 13

AReS



Just for Fun: Ares is the Greek god of war. He is the son of Zeus and Hera. Image from www.mythweb.com/gods/Ares.html

MAS has a network of Affiliated Regional Societies (AReS) throughout the United States and in Australia. MAS supports the technical programs of its AReS through its Tour Speaker Program.

The Microbeam Analysis Society strengthens its mission "to advance and diffuse knowledge concerning the principles and applications of microbeam instruments or related instrumentation" through affiliation with regional societies.

Affiliated Regional Societies (AReS) are formally affiliated with MAS, through application to and approval by MAS Council. There are currently twenty AReS across the US and in Australia. Check the list to find an AReS in your area!

The Tour Speaker Program is most significant tangible benefit that MAS provides to its AReS. This program provides annually *at no charge to each AReS* a renowned speaker for one of their technical meetings. Moreover, the pool of speakers – typically a choice of three – is chosen by representatives of the AReS at the annual meeting, thus ensuring that the subject matter of the speakers is highly relevant to the AReS membership.

Guidelines are provided by MAS for local societies that wish to become affiliated with MAS. Can't find an AReS in your area? A locally formed group with as few as twelve members can affiliate with MAS after a year. Local chapters of technical societies in geology, chemistry, physics, or materials science can benefit through affiliation with MAS. Alternatively, a group of interested individuals in any geographical area can form their own regional society to affiliate with MAS.

For additional information, contact the MAS AReS Director.

AReS Meetings

Southeastern Microscopy Society Annual meeting is held May18-20, 2011 at the Holiday Inn in Decatur, Georgia (Atlanta). The MAS sponsored speaker will be Paul Hlava and the MSA sponsored speaker will be Daniela Nicastro on 3D EM reconstruction. Other invited speakers will be Amelia Dempere on analysis of cement and Michael Oliveri on science imaging as art. Please contact John Shields (johnshields59@gmail.com) for more information.

Central States Microscopy and Microanalysis Society

The Fall 2010 meeting was held at Washington University, St. Louis. An EPMA workshop and dinner social was held October 7 followed by technical sessions on October 8. Ed Vicenzi was the MAS sponsored tour speaker. Contact Paul Carpenter for more information. (paulc@levee.wustl.edu).

Philadelphia Society for Microscopy will be holding a joint meeting with Drexel University on November 8. Ed Vicenzi will be the MAS sponsored tour speaker. Further details can be found at http://crf.coe.drexel.edu/crf/workshops.

If your local society would like to announce an upcoming event or recent meeting,

Meetings Con't

please send the details to microcronews@microprobe.org.

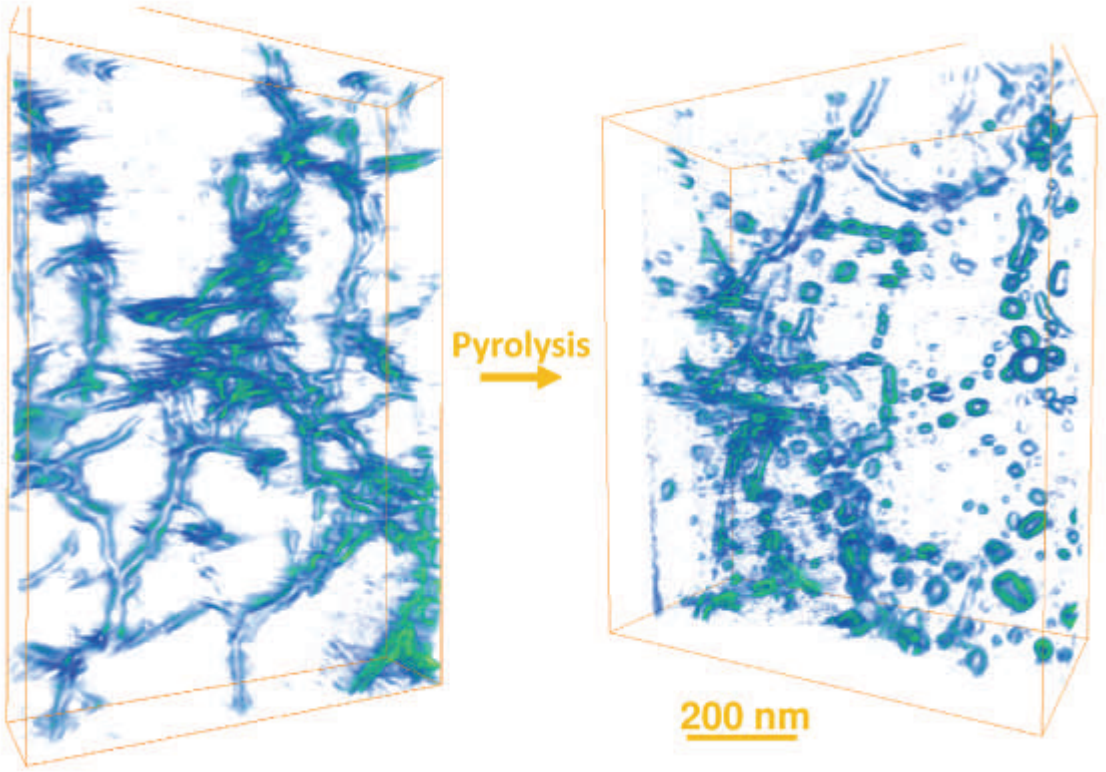
If you don't know if there is a local society in your area or how to get involved with your local society, please visit the AReS webpage for contact information http://www.microbeamanalysis.org/regional/affiliated-regional-societies-ares

Tour Speakers

The Tour Speaker Program is most significant tangible benefit that MAS provides to its AReS. This program provides annually *at no charge to each AReS* a renowned speaker for one of their technical meetings. Moreover, the pool of speakers – typically a choice of three – is chosen by representatives of the AReS at the annual meeting, thus ensuring that the subject matter of the speakers is highly relevant to the AReS membership.

Thus far for this year's tour speaker program are Ed Vicenzi of the Smithsonian Institute and Robert Simmons of Georgia State University. And as always, Paul Hlava is available to speak on *The Materials Known as Gemstones.* Ed's abstract and biography are available on the next page. In the past, Robert has enlightened AReS audiences with his knowledge of the *interaction of microorganisms with the human environment.* Other tour speaker abstracts and biographies were not immediately available. Please check the MAS website for updates to the tour speaker list.

http://www.microbeamanalysis.org/regional/tour-speaker-program



Thanks to Huolin L. Xin of the Muller Group, Cornell University for contributing this image.

HAADF-STEM tomographic reconstructions showing an evolution of the internal structure of a porous calcite single crystal during pyrolysis. Before heating (left), a network of nanofibers exist inside of the crystal. After heating (right), fibers decompose and the continuous network "breaks up" into discrete cavities, resulting in smaller surface area. For details, please see Science, 326, 1244 (2009).

Tour Speaker Ed Vicenzi

"Microanalysis of Martian Salts From The Comfort of Your Laboratory"

Abstract

MAS Tour Speaker and Past President, Ed Vicenzi.

Over the past decade information regarding minerals precipitated from ancient bodies of water on Mars has become available from spectrometers/cameras systems mounted on orbital spacecraft. Ground-based studies of rocks by the Mars Exploration Rovers have added significant, and unique, detail to our understanding of these deposits. Microanalysis of carbonates and sulfates in Martian meteorites yield perhaps the greatest wealth of chemical data concerning their origin, as these specimens are available in-hand for Earth-based laboratory studies. One drawback to meteorite analysis of Martian salts is the potential terrestrial overprinting for samples that have been subjected to Earth's atmosphere/hydrosphere for 1000s of years in some cases. Careful microscale examination of these precious specimens give clues to which materials formed preterrestrially (on Mars) versus those that formed after their arrival on Earth.

Ed Vicenzi Biography

Edward Vicenzi is a research scientist and microanalysis expert at the Smithsonian Institution's Museum Conservation Institute. He uses a variety of techniques to probe natural materials to understand their origin and history. Ed has previously served as a researcher at the US National Museum of Natural History, a research staff member at Princeton University, and a postdoctoral fellow at Macquarie University in Australia. He obtained his BSc from McGill University, MS from the University of Oregon, and his PhD from Rensselaer Polytechnic Institute all in Earth Sciences.

MAS Topical Conference

Cathodoluminescence, CL 2011

October 24-28, 2011

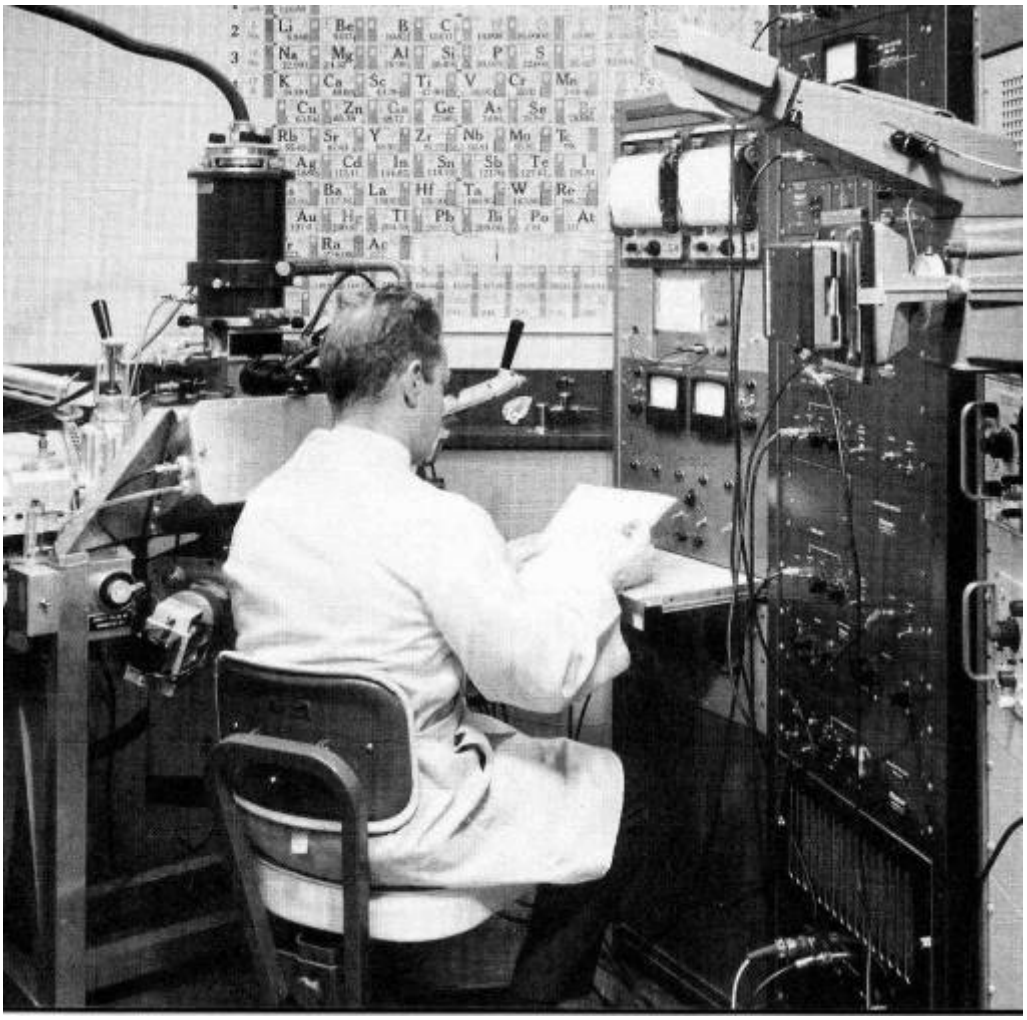
NIST, Gaithersburg, MD

co-organized by AMAS

Check the website for up-to-date information

http://microbeamanalysis.org/topical-conferences/cl-2011/CL-2011-flyer.pdf

More From The Archives by John Fournelle



In the past year, Ernest F. Fullam, Inc shut down operations. Fullam was an early member and supporter of MAS (or as it was originally known as, the Electron Probe Analysis Society of America, EPASA). Mike Marko, Archivist of the Microscopy Society of America, was in contact with Fullam's son regarding disposal of some books -- MSA keeps an archive of books published about electron microscopy. They also found an old spectrometer off of an old electron microprobe and inquired whether the MAS archivist wanted it. Of course! I can hang on to it until a better home turns up. If you know of a relevant science/technology museum which might be interested, please contact me. They also sent me some photos of the old Fullam microprobe. Attached to the adjacent image was the label " Selby 'Ted' Summers at the early electron microprobe". Other images show Ted reading off the wave scans from the (2) rolls of paper visible on the panel in front of him. If anyone knows more about Selby Summers and the Fullam probe, please contact me. And if you have any pictures of early electron microprobes, of people running those microprobes, or of early meetings of the microprobe users groups or of the national organization, EPASA, please contact me (johnf@geology.wisc.edu; 608-438-7480).

MAS @ GSA by Heather Lowers

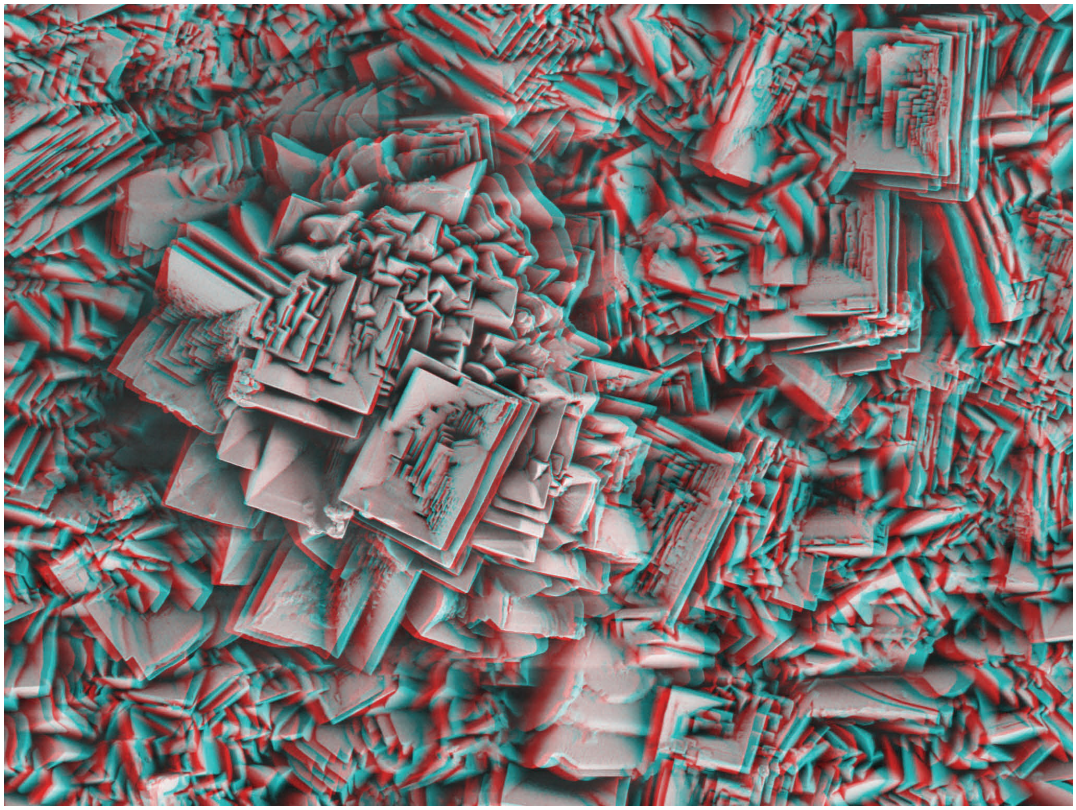
THE GEOLOGICAL SOCIETY OF AMERICA®

This summer MAS applied for and was granted Associated Society status with the Geological Society of America. This status has several advantages for MAS. As an Associated Society, MAS members who are not GSA members may attend the meeting at the reduced member rate using your MAS membership number. Additionally, MAS receives a deeply discounted booth on the exhibit floor.

GSA typically draws 6500 attendees from all disciplines within the geological sciences, nearly 1500 of which are students. This is a great opportunity to market our growing topical conference program to potential participants who might not otherwise know about MAS.

The 2010 annual meeting of GSA will be held October 31-November 3 in Denver, CO.

Please visit http://www.geosociety.org/ to learn more about this society.



3D anaglyph of pentaerythritol tetranitrate [PETN] contribute by Barry Ritchie, Sandia National Laboratories

120µm thick pentaerythritol tetranitrate [PETN] film evaporated onto fused silica. Scanning electron microscope [SEM] anaglyph from a 6° image pair. Image width = 200µm. Acquisition parameters: 1.0 kV / 200nA beam, secondary electron signal, 2048 x 1536 pixel images, line averaged [n=65]. Even with an 8nm iridium coating, PETN is very sensitive to beam damage and charging. Many 'pagodas' were burned-down in an effort to get a decent stereo pair. Although it is easy to get lost in time while imaging these beautiful structures, the morphology observed in this sample is a result of a unique substrate interaction and the physical vapor deposition parameters.

MAS @ AGU by Heather Lowers & John Fournelle

Since 2006, MAS has had a consistent presence at the American Geophysical Union conferences either as a co-sponsor of sessions or with a booth on the exhibit floor. The annual fall meeting in San Francisco during December of each year continues to expand with over 16,000 professionals and students from around the world attending. Easily 1000 of these are mineralogists, geochemists, volcanologists and structural geologists who use daily a variety of microanalytical instruments. Each year, the number of abstracts submitted to the MAS co-sponsored session has steadily increased. Once again, we received enough abstracts this year to host an oral session at AGU which is very hard to secure. The increasing number of abstracts calls attention for the need of such a session at the AGU meeting. The session allows researchers and students to present material which may not fit or be as highly received in other sessions at AGU.

A run down of the past years:

2006 Spring Mtg: 3 sessions: General Contributions to Microanalysis in the Earth Sciences; From Earth to Mars and Beyond; Microanalysis: Small Beams, Big Science

2006 Fall Mtg: booth

2007 Fall Mtg: Challenges to Electron Microprobe Analysis in Geology: 16 Posters

2008 Fall Mtg: booth

2009 Fall Mtg: Standards for Microanalysis: EPMA, LA-ICPMS, and SIMS: Where are we and where do we go? 6 Talks, 15 Posters

2010 Fall Mtg: Microanalysis in Geoscience: Advances and Challenges: 6 Talks: 23 Posters

Oral Presenters for the 2010 AGU MAS co-sponsored session:

Application of Microbeam Techniques to Identifying and Assessing Comagmatic Mixing Between Summit and Rift Eruptions at Kilauea Volcano Carl R. Thornber, Michael C. Rowe, David T. Adams, James C. Rea, and Tim R. Orr

Development and characterization of a Ti-doped haploandesite glass standard for Ti-in-zircon geothermometry (Invited) John M. Hanchar, Nobumichi Shimizu, John Fournelle, Christopher M. Fisher, Angela Buchanan, Philip M Piccoli, Chris Hayward, Samuel A Bowring

New Capabilities and Challenges for Mineral Microanalysis using Large Area Silicon-Drift Detectors on Field Emission SEM's and Electron Microprobes John T Armstrong

Combined SIMS, NanoSIMS, FTIR, and SEM Studies of OH in Nominally Anhydrous Minerals (NAMs) Jed L Mosenfelder, Marion Le Voyer, George R Rossman, Yunbin Guan, David R Bell, Paul D Asimow, John Eiler

Interphase Misorientation – A Technique for Identifying Mimetic Lattice Preferred Orientation David D Mcnamara, John Wheeler, Mark A Pearce, David John Prior

X-ray tomography as a non-destructive tool for evaluating the preservation of primary isotope signatures and mineralogy of Mesozoic fossils Javier D Santillan, Jeremy W Boyce, Rob Eagle, Taylor Martin, Thomas Tuetken, John Eiler

Atom Probe Tomography of Olivine Stephen Wayne Parman, Brian Gorman, Colin Jackson, Reid F Cooper, David Jaeger

Combining Focused Ion Beam and Electron Microscopy to Prepare and Analyze Starting and Recovered Materials of High Pressure and Temperature Diamond-Anvil Cell Experiments Sergio Speziale, Hauke Marquardt, Richard Wirth, Anja Schreiber, Katharina Marquardt, Gregor Neusser, Hans J Reichmann

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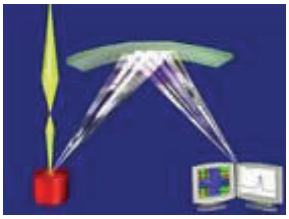

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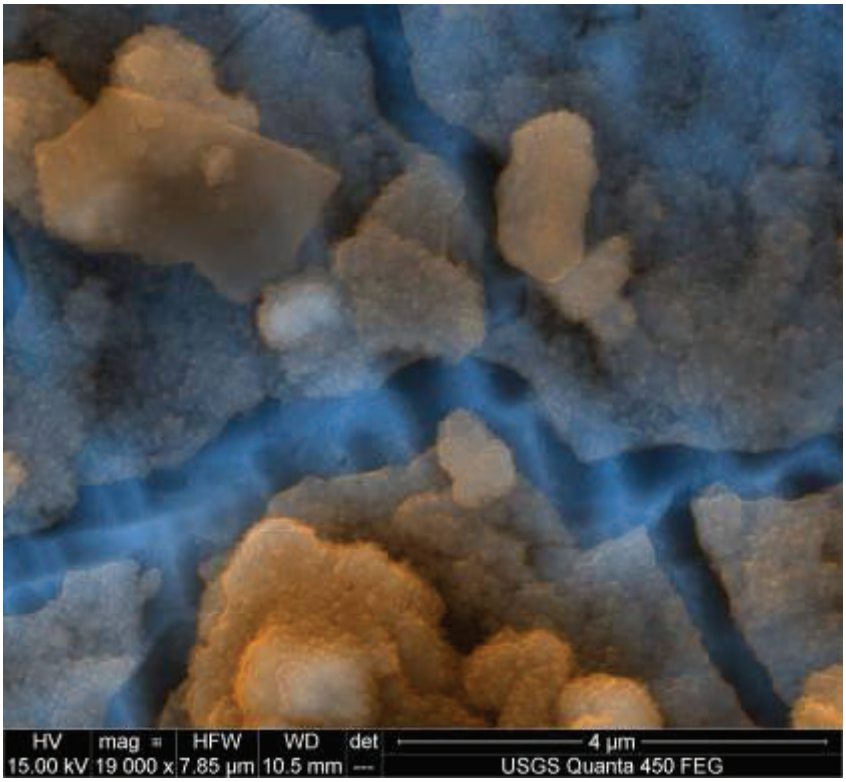


Mixed signal (SEI & BSE) image of an etched sphalerite (ZnS) grain covered with an amorphous aluminum hydroxide phase from mine tailings. The aluminum hydroxide displays shrinkage features, which demonstrates its solubility due to wetting and drying cycles. Photo Credit: Heather Lowers & Sharon Diehl, USGS.

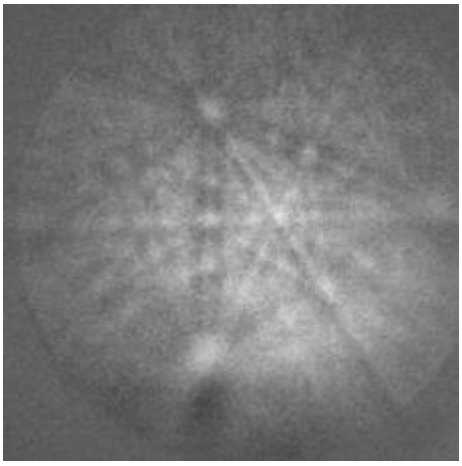
Tips & Tricks

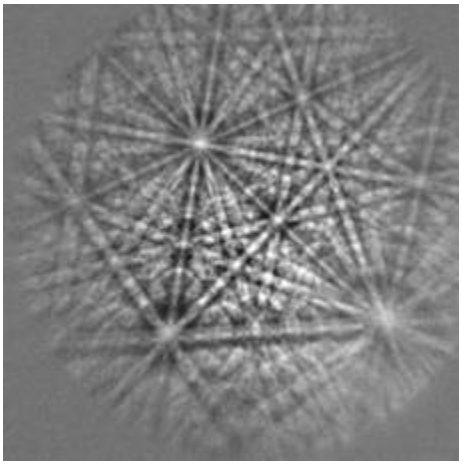
Sintered Uranium Oxide characterized by EBSD *submitted by* Carl Necker, Los Alamos National Lab

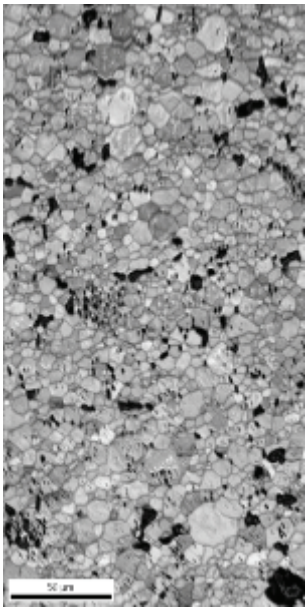
The material was mounted in two part epoxy and ground through 800 grit SiC paper. It was polished on low nap cloth with 3 µm and 1 µm diamond paste for 8 minutes each. The left pattern was following an 8 minute polish on a medium nap cloth using 0.25 µm diamond paste. The right pattern was the result of a 12 minute polish on medium nap cloth using colloidal silica. The exposed epoxy surfaces were painted with conductive colloidal graphite. The sample surface was not coated with a conductive film.

The inverse pole figure map shows a random crystal direction distribution while the image quality map makes the voids visible.

System – FEI FEG-ESEM, EDAX-TSL OIM-EBSD





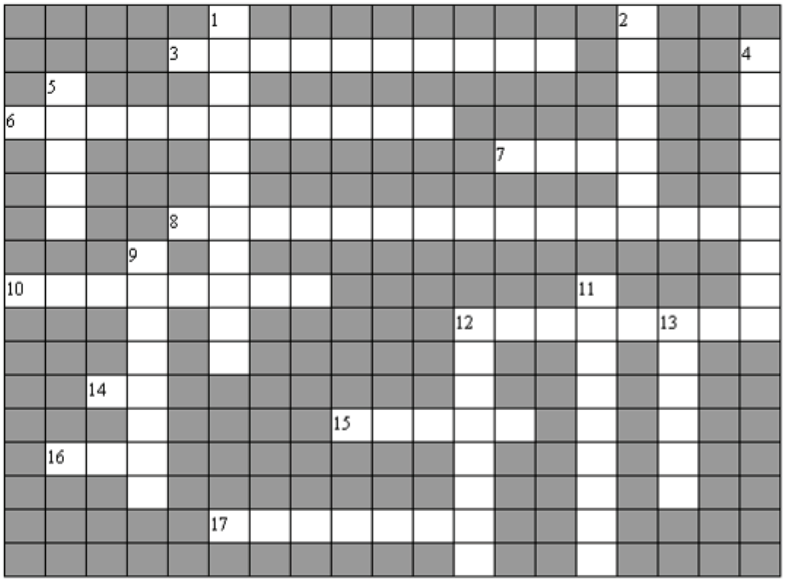


If you have a tip or trick you would like to share, please email it to micronews@microprobe.org.

Also be sure to see Barry Ritchie's 3D anaglyph of PETN on page 14.

Just for Fun

A. Quick crossword



Across

3. H as in LaB_6
6. Wave equation
7. not odd
8. PET
10. F as in LiF
12. At
14. 2011 Topic of interest
15. Line to point transform
16. Angstroms in a nm
17. Time to frequency transform

Down

1. Md
2. Current Past President
4. P as in TAP
5. Current MAS President
9. 2010 M&M host city
11. 2011 M&M host city
12. A moles number
13. In

B. Guess who?

Photo from www.walldesk.net

C. Sudoku...same rules but use the Greek alphabet.

		δ		γ	θ			ζ
		θ						
β			ζ	ι	η	δ	γ	θ
						γ	ι	
	δ		ι		ζ		ε	
	α	ι						
ι	ζ	η	γ	α	δ			β
						η		
δ			η	ε		α		

A. Answers can be obtained in exchange for your contribution to MicroNews!

The purpose of this Society shall be to advance and diffuse knowledge concerning the principles and applications of microbeam instruments or related instrumentation, and to provide continuity, advance planning, and a financing mechanism for annual meetings.

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⇒ Geological Society of America Annual Meeting (Denver, CO, from Oct 31-Nov 3, 2010)

⇒ American Geophysical Union Annual Meeting (San Francisco, CA, from Dec 13-17, 2010)

⇒ AMAS XI (Canberra, Australia, from Feb 09-11, 2011)
The eleventh biennial meeting of the Australian Microbeam Analysis Society (AMAS), to be held at the Australian National University in Canberra, ACT.

⇒ EMAS 2011 (Angers, France, from May 15-19, 2011)
12th European Workshop on Modern Developments and Applications in Microbeam Analysis

⇒ Southeastern Microscopy Society (Atlanta, GA, from May 18-20, 2011)

⇒ IUMAS-V (Olympic Parktel, Seoul, South Korea, from May 22-27, 2011)
5th Meeting of the International Union of Microbeam Analysis Societies, held in conjunction with the 8th International Symposium on Atomic Level Characterization for New Materials and Devices (ALC '11)

⇒ Lehigh Microscopy School (Bethlehem, PA, from June 5-16, 2011. Contact Sharon Coe, 610-758-5133, Sharon.coe@Lehigh.edu)
Introduction to SEM and EDS for the New Operator-June 5, 2011
Scanning Electron Microscopy and X-ray Microanalysis-June 6-10, 2011
Scanning Probe Microscopy: From Fundamentals to Advanced Applications-June 13-16, 2011
Problem Solving with SEM, X-ray Microanalysis, and Electron Backscatter Patterns-June 13-17, 2011
Quantitative X-ray Microanalysis: Problem Solving using EDS and WDS Techniques-June 13-17, 2011
Scanning Transmission Electron Microscopy: From Fundamentals to Advanced Applications-June 13-17, 2011
Focused Ion Beam (FIB): Instrumentation and Applications-June 13-16, 2011

⇒ Microscopy & Microanalysis 2011 (Nashville, TN, from Aug 07-11, 2011)
The annual meeting of the Microbeam Analysis Society in conjunction with the Microscopy Society of America

⇒ Cathodoluminescence 2011 (NIST, Gaithersburg, MD, USA, from Oct 24-28, 2011)
An MAS Topical Conference, co-organized by AMAS

⇒ Microscopy & Microanalysis 2012 (Phoenix, AZ, from Jul 29, 2012 to Aug 02, 2012)
The annual meeting of the Microbeam Analysis Society in conjunction with the Microscopy Society of America.