

Volume 9

2013





Meteoritical Society

<http://meteoriticalsociety.org>

2013 INCOMING PRESIDENT'S ADDRESS



Monica Grady

It is with great pleasure that I take over as president of the Meteoritical Society. Before saying any more, I should thank Professor Ed Scott from the University of Hawai'i for his presidency over the past two years. During this time, the Meteoritical Society has taken an active role in the production of *Elements*, to the great benefit of the Society.

I have been a member of the Meteoritical Society for more years than I care to remember, and I have served on Council, first as a councilor and then as secretary in the early 1990s. The first conference I attended was a Meteoritical Society meeting, and I was struck by the friendliness of the Society and how inclusive that initial meeting was. As a mere PhD student, I was impressed by how respectfully my contribution (on carbon in ordinary chondrites) was received. Over the years, the Society has got much bigger, but I think it still retains that feeling of inclusiveness. Certainly the very specialized study of meteorites brings people together, but we are now a very diverse community of people studying meteorites, as we relate them to their parent objects and put what we learn from meteorites in a much broader astronomical context. I look forward to my two years as president of the Society, and I especially look forward to meeting the many students who attend Society meetings.

This particular issue of *Elements* concerns 100 years of geochronology. Of course, chronological studies depend on meteorites as the baseline against which other planetary bodies are compared, and future generations of meteoritists will be making sure that in 100 years time we will still be celebrating what we learn about the planetary systems through the study of meteorites.

Monica Grady (Monica.Grady@open.ac.uk)
President 2013–2014, The Meteoritical Society

OFFICERS AND COUNCIL MEMBERS

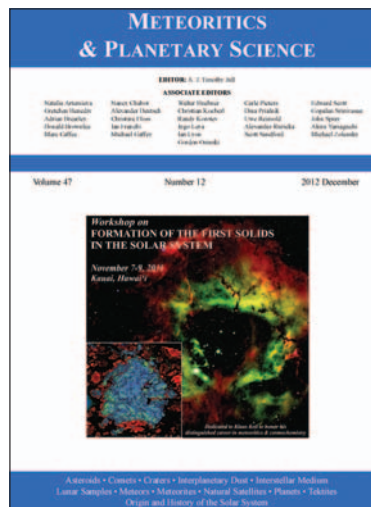


From left to right, Vice President Michael Zolensky, Secretary Greg Hergoz, Treasurer Rhian Jones, and Past President Ed Scott

Michael Zolensky, NASA Johnson Space Center, is the new incoming vice president of the Meteoritical Society. He joins President Monica Grady of the Open University, Secretary Greg Hergoz of Rutgers University, Treasurer Rhian Jones of the University of New Mexico, and Past President Ed Scott in leading the Meteoritical Society through the next two years.

The Meteoritical Society Council will consist of Nancy Chabot (Johns Hopkins University Applied Physics Lab, Laurel, Maryland, USA), Hasnaa Chennaoui (Hassan II University, Casablanca, Morocco), Luigi Folco (Museo Nazionale dell' Antartide, University of Siena, Italy), Jay Melosh (Purdue University, West Lafayette, Indiana, USA), Larry Nittler (Carnegie Institution, Washington, DC, USA), Maria Schönbachler (ETH Zürich, Switzerland), Kevin Righter (NASA Johnson Space Center, Houston, Texas, USA), and Hisayoshi Yurimoto (Hokkaido University, Sapporo, Japan).

SPECIAL ISSUE OF METEORITICS & PLANETARY SCIENCES



Klaus Keil

The December issue of *Meteoritics & Planetary Science* contains 25 articles from the Workshop on the Formation of the First Solids in the Solar System, which took place on the island of Kaua'i, Hawai'i, in November 2011. The meeting and the issue honored **Klaus Keil** for his distinguished career in meteoritics and cosmochemistry. The papers deal with the origin of the oldest solids (refractory inclusions, chondrules, and melted planetesimals), theoretical studies of the earliest stages in the formation of the Solar System, the abundance of short-lived isotopes and implications for dating the earliest solids, and stable isotope anomalies and their relation to short-lived isotopes. The special issue of *MAPS* also contains an oral history recorded by Derek Sears with Klaus Keil, who celebrated his 78th birthday last November and who retired (at least formally) last July.

ANNUAL MEETING SCHEDULE

- 2013: Edmonton, Alberta, Canada, July 29–August 2
- 2014: Casablanca, Morocco, September 7–14
- 2015: Berkeley, California, USA, July 27–31
- 2016: Berlin, Germany, August 7–12

RENEW YOUR MEMBERSHIP NOW!

Please renew by March 31, 2013; after that date, a \$15 late fee will be assessed. You can renew online at <http://metsoc.meteoriticalsociety.net>.

Correction: The Meteoritical Society News in the December 2012 issue of *Elements* incorrectly listed the home institution of Nier Prize winner Frederic Moynier as the University of Chicago. Frederic is actually at Washington University in St. Louis. Our apologies to Frederic!



Meteoritical Society

<http://meteoriticalsociety.org>



Downtown Edmonton

ANNUAL MEETING

The 76th Annual Meeting of the Meteoritical Society will be held in Edmonton, Alberta, Canada, at the Crowne Plaza Hotel on July 29–August 2, 2013. At press time, details of travel grants had not yet been finalized. However, it is anticipated that travel grants will be available for qualified graduate students who are members of the Meteoritical Society. Funds from the Meteoritical Society Endowment Fund will also be provided to scientists from low-income countries. A generous contribution from the Royal Astronomical Society of Canada–Edmonton Chapter has provided funding to assist undergraduate students enrolled at Canadian universities to attend the meeting. Travel grant applications will require a completed application form, including a current résumé, to be submitted before the abstract deadline, which is May 16, 2013. Information on all travel grants, including eligibility and other requirements, is available at the meeting website:

www.metsoc2013edmonton.org.

The meeting website will be updated as plans progress. Visit often to find out about special sessions, excursions, and field trips and to plan your visit to Alberta; you can also follow the meeting on Twitter: @MetSoc2013.

NEW BOOK ON IMPACT CRATERING

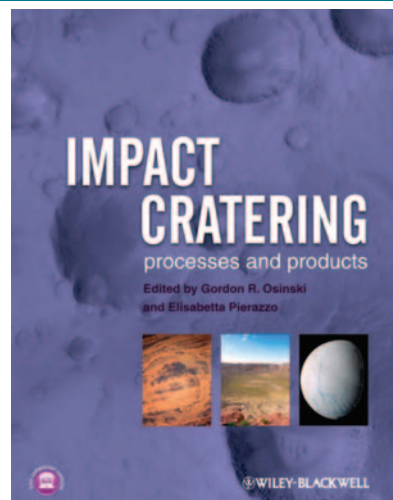


A new book of interest to Meteoritical Society members has been published by Wiley-Blackwell (January 2013). *Impact Cratering: Processes and Products*, edited by **Gordon Osinski** and **Elisabetta Pierazzo**, seeks to fill a critical gap in the literature by providing an overview text covering broad aspects of the impact-cratering process. The book's 20 peer-reviewed chapters are aimed at graduate students, professionals, and researchers. This book introduces readers to

the threat and nature of impactors, the impact-cratering process, the products of impact, and the effects—both destructive and beneficial. A series of chapters on the various techniques used to study impact craters provide a foundation for anyone studying these fascinating objects.



This book is dedicated to **Betty Pierazzo**, who sadly passed away before the book was published. As noted in the dedication, "Betty was an exceptional scientist and she made numerous important research contributions throughout her career." Betty was a leader in her field and instrumental in bringing together researchers from different aspects of the cratering community to look at big



problems, organizing many conferences, including the Bridging the Gap series, to this end. She was also very interested in education and public outreach, and she developed the Explorer's Guide to Impact Craters program. Those who knew Betty will remember her incredible lust for life. The dedication continues, "Whether it was interacting with colleagues on field trips to impact craters around the world, on the pitch playing soccer, or during the many social gatherings at her house in Tucson, Betty always had a smile on her face that invoked the same sense of enthusiasm and joy in everyone she met... The impact community has lost an invaluable member; we all miss her."

The book is available in both print and e-book form. The figures are available as PowerPoint files from a companion website and provide a valuable teaching resource (www.wiley.com/WileyCDA/WileyTitle/productCd-140519829X,descCd-tableOfContents.html).

MetSoc members can purchase this book at a 25% discount through the Wiley-Blackwell discount program. Please see the membership services page on the Society website.

REDUCED MEMBERSHIP RATES IN DEVELOPING COUNTRIES

The Meteoritical Society invites membership applications at reduced rates (\$24/year) from people who live in countries on the Health InterNetwork Access to Research Initiative (HINARI) list (www.who.int/hinari/eligibility/en). This rate includes printed copies of *Elements* and the Society's journal, *Meteoritics & Planetary Science*, as well as electronic access to these journals. Please send requests to the chair of the Membership Committee, Alex Ruzicka (ruzicka@pdx.edu).

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THANKS TO OUR SOCIETY COMMITTEE MEMBERS

The Meteoritical Society would like to extend its sincere thanks to all those members who are serving on Society committees this year. We have listed their names below, with the names of the committee chairs in bold; the names of those rotating off are in italics. Without the generous help of these members, the Society could not function. We greatly appreciate their help!

Committees	Members for 2012	
Leonard Medal	Conel Alexander Herbert Palme François Robert Noriko Kita Christine Floss <i>Tim McCoy</i>	Carnegie Institution of Washington Senckenberg Museum, Frankfurt Muséum National d'Histoire Naturelle, CNRS, Paris University of Wisconsin, Madison Washington University, St. Louis Smithsonian Institution
Barringer Award	Jeff Plescia Barbara Cohen Alvaro Crosta Mark Burchell <i>Joanna Morgan</i>	Johns Hopkins University, Applied Physics Lab NASA Marshall Space Flight Center University of Campinas-UNICAMP University of Kent Imperial College London
Publications	Andreas Pack Rainer Wieler George Flynn Takashi Mikouchi Steven Desch Hanna Nekvasil <i>Larry Nittler</i> <i>Nicholas Dauphas</i> <i>Cyrena Goodrich</i>	Georg-August-Universität ETH Zürich SUNY-Plattsburgh University of Tokyo Arizona State University SUNY-Stony Brook Carnegie Institution of Washington University of Chicago Planetary Science Institute
Joint Publications	Jeff Grossman Munir Humayun <i>Brigitte Zanda</i>	Florida State University Florida State University Muséum National d'Histoire Naturelle, CNRS, Paris
Endowment	Drew Barringer Uwe Reimold Marc Caffee Paul Warren Joe Goldstein	Barringer Crater Company Humboldt University, Berlin Purdue University University of California, Los Angeles University of Massachusetts, Amherst
Audit	Susan Taylor Mini Wadhwa Bernard Marty <i>Andrew Davis</i>	CRREL, Hanover, New Hampshire Arizona State University CRPG, Université de Nancy University of Chicago
Nomenclature	Chris Herd Takashi Mikouchi Pierre Rochette Caroline Smith Michael Weisberg Henning Haack Smail Mostefaoui Kees Welten Alex Ruzicka Linda Welzenbach Carl Agee Knut Metzler <i>Richard Greenwood</i> <i>S. V. S. Murty</i>	University of Alberta University of Tokyo CEREGE CNRS Aix-Marseille Université Natural History Museum, London Kingsborough College, City University of New York Natural History Museum, University of Copenhagen Muséum National d'Histoire Naturelle, CNRS, Paris Space Sciences Laboratory, University of California Portland State University Smithsonian Institution University of New Mexico Westfälische Wilhelms-Universität, Münster Open University Physical Research Laboratory, Ahmedabad
Paul Pellas–Graham Ryder (Best Student Paper)	Mario Trieloff Hilary Downes Phil Bland <i>Dante Lauretta</i>	University of Heidelberg Birkbeck College Curtin University University of Arizona
Membership and Service Award	Takuya Kunihiro Jutta Zipfel Larry Lebofsky Alex Ruzicka Melissa Strait Erin Walton <i>Phil Bland</i>	Okayama University Senckenberg Museum, Frankfurt Planetary Science Institute Portland State University Alma College MacEwan University, Edmonton Curtin University
Mckay Award	Cari Corrigan Erin Walton Fred Ciesla	Smithsonian Institution MacEwan University, Edmonton University of Chicago



Société Française de Minéralogie et de Cristallographie

www.sfmc-fr.org

SECOND SCIENTIFIC MEETING OF THE GROUPE DE PÉTROLOGIE ENDOGÈNE

The 2nd Scientific Meeting of the Groupe de Pétrologie Endogène, in collaboration with the Société Française de Minéralogie et de Cristallographie and the Société Géologique de France, was held in Nancy at the Centre de Recherches Pétrographiques et Géochimiques (CRPG) on 22–23 January 2013. Organized by K. Devineau (GéoRessources, Nancy), S. Duchêne and M. Grégoire (Géosciences Environnement, Toulouse), and F. Faure (CRPG, Nancy), the meeting brought together 80 participants (photo), including researchers and graduate students. The CRPG, the Observatoire Terre Environnement Lorraine, the Labex Ressources 21 project, and the Université de Lorraine sponsored the meeting. The first day was devoted to a series of high-quality talks on deep fluid and melt inclusions and their applications to diverse scientific topics. On the second day, post-doctoral fellows and PhD students delivered oral and poster presentations on their research in various fields of igneous and metamorphic petrology. The next scientific meetings of the Groupe de Pétrologie Endogène are planned for Pau in 2014 and Rennes in 2015. All are welcome!



MINERAL RESOURCES: SCIENTIFIC AND SOCIETAL CHALLENGES – SHORT COURSE

A CNRS short course on mineral resources was held in Geneva on 5–7 February 2013. The short course was organized by a France–Switzerland team from the Université de Genève, the Université de Savoie in Chambéry and the Université Joseph Fourier in Grenoble and was sponsored by several mining companies, institutions and societies (including SFMC). The course attracted about 330 participants, mainly master's and PhD students but also scientists from universities and mining or consulting companies. The lecture topics ranged from fundamental science to economic and societal issues: new research on ore-forming processes, new exploration techniques, the environmental impact of mining (including remediation of polluted sites and “green-mining”), the social impact of the mining industry, and the economics and trading of raw materials. An afternoon was devoted to round-table discussions on future employment in the minerals industry, links between academia and industry, the future of submarine mining, the social perception of the mining industry, and future scientific challenges in the study of ore deposits. Young scientists presented their research as posters, and four received awards from Rio Tinto for their innovation or multidisciplinary aspects. Plenary lectures were given by S. Simmons (Colorado School of Mines) on epithermal deposits and by M. Harris (Rio Tinto) on the moral case for mining. The excellence of the talks and the active participation of the audience in the discussions vividly illustrated the renewed enthusiasm of European Earth scientists, in academia and industry, for economic geology and the study of mineral resources. The Université de Rennes offered to organize the next short course, to be held in the spring of 2014.

<http://meteoriticalsociety.org>

METEORITE NOMENCLATURE COMMITTEE

Report of the Chair



The purpose of the Nomenclature Committee (NomCom) is to approve new meteorite names and to establish guidelines and make decisions regarding the naming of meteorites. We are also charged with keeping the community apprised of new meteorites through the *Meteoritical Bulletin* and the Meteoritical Bulletin Database (www.lpi.usra.edu/meteor/metbull.php). Since the last report, *Meteoritical Bulletin* (MB) 99 has been published in the new online format, and MB100 and 101 are forthcoming. The Database now includes a news feature, available to the public.

The topic of type specimen repositories has been on the NomCom agenda for some time, with efforts directed towards ensuring that any type specimens (provided to a repository as part of the process for approval of new meteorites) are properly curated over the long term so that they are available for scientific research. The process culminated recently in a new section called Type Specimen Repositories in the NomCom Procedures. The section defines an acceptable repository and outlines the process for approval of new repositories and review of existing ones. The changes were approved by Council in March and are now in effect. A copy of the procedures is available at http://meteoriticalsociety.org/?page_id=107.

Please do not hesitate to contact me (herd@ualberta.ca) with questions or concerns about NomCom and especially with suggestions for improvement. Essential information on meteorite nomenclature, instructions and the template for reporting new meteorites, and NomCom membership may be found on our home page: http://meteoriticalsociety.org/?page_id=106.

Chris Herd, Chair

IN MEMORIAM



David S. McKay, Chief Scientist for Astrobiology at the NASA Johnson Space Center, passed away on February 20, 2013. McKay was perhaps best known for being the first author of a scientific paper postulating past life on Mars. This paper has become one of the most heavily cited papers in planetary science. The NASA Astrobiology Institute was founded partially as a result of community interest in this paper and related topics. McKay studied lunar dust since the return of the first Apollo 11 samples in 1969 and contributed over 200 publications on this topic.

As a graduate student in geology at Rice University, McKay was present at John F. Kennedy's speech in 1962 announcing the goal of landing a man on the Moon within the decade. Kennedy's speech inspired his interest in helping to train the Apollo astronauts in geology. During the Apollo program, McKay gave the first men to walk on the Moon training in geology. He was a chief trainer for Neil Armstrong and Buzz Aldrin during their last geology field trip in West Texas and was the only geologist present in the Apollo Mission Control Room in Houston when Armstrong and Aldrin walked on the Moon in 1969.

McKay was honored by the International Astronomical Union by having an asteroid named after him in 2002. He was also a recipient of the NASA Superior Achievement Award for Lunar Science Contributions and the NASA Exceptional Scientific Achievement Medal. This text was adapted from an obituary posted on the Meteoritical Society website.

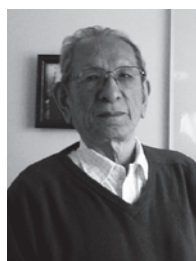


Devendra Lal, Professor of Nuclear Physics at Scripps Institution of Oceanography, passed away on December 1, 2012, at his San Diego home at the age of 83. Throughout his long career, Professor Lal was known for the diversity and creativity of his research. His early work on the composition and energy spectrum of primary cosmic radiation and in elementary particle physics became the basis for his research on the mechanisms and rates of natural physical and chemical processes on Earth and in the Solar

System using radionuclides. He worked on nuclear tracks and radioactivity in the Apollo lunar samples and in meteorites. His work brought him numerous international honors, among them his appointment as a Fellow of the Royal Society and his reception of the V. M. Goldschmidt Medal of the Geochemical Society.

Professor Lal held appointments in India, first as a professor at the Tata Institute and then as a professor and director of the Physical Research Laboratory in Ahmedabad. From 1989 onward he made the Scripps Institution of Oceanography his full-time academic home. He worked closely with his wife, Aruna, until her death.

To his many friends and colleagues, Professor Lal was well known for his insatiable curiosity and good humor and as a caring and demanding teacher. He was born to a large family of modest means in Varanasi, India, where he completed his bachelor's and master's of education degrees at Banaras Hindu University. This text was adapted from an obituary published at <http://scrippsnews.ucsd.edu/Releases/?releaseID=1314>.



Masatake Honda passed away on February 16, 2013, at the age of 92, ending a distinguished career in meteoritics, lunar geochemistry, analytical chemistry, and nuclear chemistry, a career that lasted more than half a century. He was the recipient of several awards, including the 1987 Leonard Medal of the Meteoritical Society for his pioneering work in establishing the measurement and the production-rate systematics of cosmic-ray-produced stable and radioactive nuclides in meteorites and lunar samples. He continued to

be active in research throughout his professional life, devoting much of his later efforts to comprehensive studies of cosmogenic nuclides in large iron meteorites.

ANNUAL MEETING SCHEDULE

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- **2014** September 7–12, Casablanca, Morocco
- **2015** July 27–31, Berkeley, California
- **2016** August 7–12, Berlin, Germany
- **2017** Dates to be announced, Albuquerque or Santa Fe, New Mexico

<http://meteoriticalsociety.org>

2013 METEORITICAL SOCIETY TREASURER'S REPORT



Rhian Jones

The Society's finances continue to be on a sound footing, and both the Operating Fund and our Endowments are currently very healthy. A large portion of the operating budget relates to publication of *Meteoritics and Planetary Science (MAPS)*, our international monthly journal of planetary science, which covers topics including the origin and history of the Solar System, planets and natural satellites, interplanetary dust and the interstellar medium, lunar samples, meteors, meteorites, asteroids, comets, craters, and tektites. *MAPS* has been

published by Wiley since 2010, and our income from Wiley closely matches the expenses of the editorial office at the University of Arizona, which is managed by Editor Tim Jull.

Society membership includes subscriptions to *MAPS* and *Elements*. Membership with subscription to only the electronic version of *MAPS* has become a popular option, although about 60% of our membership still purchases the printed version. Collection of dues for 2014 will begin in October 2013. I encourage members to pay their dues in a timely manner, as this helps greatly with financial planning.

Our Investment Fund, which includes three separate endowed funds, continues to grow. Many Society members contribute generously to support these funds, and donations are always greatly appreciated. The Nier Fund supports the annual Nier Prize, which recognizes outstanding research by young scientists in meteoritics and closely allied fields. This year's recipient (2013) is Dr. Audrey Bouvier (University of Minnesota). The Gordon A. McKay Fund supports an award to the student who gives the best oral presentation at the annual meeting of the Society. Last year's award (2012) was given to Maartje Hamers (Universiteit Utrecht). The General Endowment Fund supports a variety of outreach projects. Over the last year, General Endowment funds were used to support students traveling to the Lunar Highlands Workshop (June 2012) and the Gordon Conference on the Origins of Solar Systems (June 2013). Endowment funds were also used to support the travel expenses of four professional members from low-income countries to participate in the Meteoritical Society meeting in Cairns in August 2012. This year we will support scientists from low-income countries traveling to the Meteoritical Society meeting in Edmonton. The money will come from two sources—the General Endowment and our initiative to raise money for this purpose directly through contributions made as part of annual membership renewal. Thirty-one members responded to this request this year. Your contributions provide direct support that helps to strengthen our international community. We always welcome suggestions and ideas for ways in which the General Endowment Fund can be utilized to promote the goals of the Society.

2013 MEMBERSHIP REPORT

As of May 2013, the Meteoritical Society is made up of 689 regular members, 105 student members, 155 retired members, 19 life members, and 4 members from developing countries, for a total of 972 members. Many thanks to Alex Ruzicka and J. Alex Speer for providing these statistics. We can be proud that we have members in 42 countries, but statistics show that we still have a lot to do to gain members in India, China, and many other countries. The Society does have a mechanism to subsidize annual dues for members in low-income countries—please see our website for more information.

Those wishing to avoid the hassle of paying dues every year might consider becoming a life member! For more information and details on how to become a member of the Meteoritical Society, please see our Society web page at www.meteoriticalsociety.org.

Country	Regular	Student	Life	Developing Country	Retired	Total
Argentina	2					2
Australia	17	11			4	32
Austria	6	2			2	10
Belgium	4				2	6
Brazil	2	2			2	6
Canada	29	7	1		8	45
Chile	2					2
China	3					3
Czech Republic	4				1	5
Denmark	3	3	1		2	9
Finland	1	1			1	3
France	35	4	1		5	45
Germany	78	6	3		12	99
Hungary	1	1				2
India	3				1	4
Italy	10	1			1	12
Japan	76	10			12	98
Korea, Republic of	2					2
Netherlands	3	1			1	5
Poland	4	2				6
Russian Federation	6	1			1	8
South Africa	2					2
Spain	2					2
Sweden	5	1				6
Switzerland	20	2			5	27
United Kingdom	35	11			4	50
United States	326	39	12		89	466
Totals	689	105	19	4	155	972

The following countries have one member at this time: Algeria, Botswana, Estonia, Holy See (Vatican City State), Ireland, Luxembourg, Malaysia, Morocco, New Zealand, Norway, Oman, Romania, Slovakia, Taiwan, and Uruguay.

PAUL PELLAS–GRAHAM RYDER AWARD WINNER

The Pellas-Ryder Award for the best student paper in planetary sciences is jointly sponsored by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America. It is awarded to an undergraduate or graduate student who is first author of the best planetary science paper published in a peer-reviewed scientific journal during the year prior to the award. The award has been given since 2001 and honors the memories of meteoriticist Paul Pellas and lunar scientist Graham Ryder.



The winner of the 2013 Pellas-Ryder Award is **Christoph Burkhardt** of the Institute of Geochemistry and Petrology at ETH Zürich (now at the University of Chicago). Dr. Burkhardt's paper, "Origin of isotopic heterogeneity in the solar nebula by thermal processing and mixing of nebular dust," published in 2012 in *Earth and Planetary Science Letters*, presents Mo and W isotope compositions in acid leachates and insoluble residue from the Murchison carbonaceous chondrite. Christoph and coauthors T. Kleine,

N. Dauphas, and R. Wieler suggest that mixing or thermal processing in the solar nebula caused isotopic heterogeneity of Mo, while refractory elements such as Os and W were not affected and remain isotopically homogenous.

<http://meteoriticalsociety.org>

2014 ANNUAL MEETING INVITATION

You are cordially invited to attend the 77th Annual Meeting of the Meteoritical Society, to be held on 7–13 September 2014, in Casablanca, Morocco. Casablanca is Morocco's largest city. Located in the northwest of Morocco on the Atlantic Ocean, Casablanca is known all over the world. Besides being the economic capital of a fast-developing country, "Casa" is a prestigious center of art and architecture, showing a unique blend of traditional Moorish architecture and Art Deco. To be immersed in this atmosphere, the meeting will be held in the Hyatt Regency Casablanca in the city center, within walking distance of hotels and the railway station. For tourist information, visit the website www.tourisme.gov.ma/.

Plenary, oral, and poster sessions will be held in the conference center at the Hyatt Regency Casablanca, which will also provide accommodation for meeting attendees. Scheduled events include an icebreaker during registration, a banquet, an award ceremony, and several excursions. Two preconference workshops will be held the weekend before the meeting, and a 5–6 day postconference field trip will be held in the south of Morocco. The 3rd Arab Impact Cratering and Astrogeology Conference (AICAC III) will take the form of a special impact symposium during the Meteoritical Society conference.

This meeting will be a unique opportunity for researchers from Africa and the Middle East to meet planetary science experts for discussions on the most advanced techniques for studying meteorites, cosmic dust, asteroids, and comets, and their implications for the origin and evolution of the Solar System. The conference will also outline the importance of such extraterrestrial research in countries adjacent to the Sahara and Arabia, in which meteorites abound and impact craters exist or are yet to be discovered. Morocco, the site of most Northwest Africa (NWA) meteorites, including some rare specimens, is indeed one of the most important countries in the world for meteorite finds.

Conference information and announcements, as well as details about Morocco, are posted on the conference website: www.metsoc2014casablanca.org.

Hasnaa Chennaoui Aoudjehane (h.chennaoui@fsac.ac.ma)
Conference Chair

ANNUAL MEETING SCHEDULE

- **2014** Casablanca, Morocco, September 7-14
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- **2016** Berlin, Germany, August 7-12
- **2017** New Mexico, USA, dates and exact location TBD

IN MEMORIAM

JOHN KERRIDGE (1937–2013)



John Kerridge passed away on March 25, a few weeks after his 76th birthday, losing his battle with mesothelioma. John was a fellow of the Meteoritical Society, and members remember him well for his service to the Society in initiating and then editing the first volume of *Meteorites and the Early Solar System* (1988). In this impressive volume, John assembled the collective visions of 69 coauthors to assess the progress and discuss options regarding the use of meteorite data in studying the environment and processes in the early solar nebula. He put emphasis on a requirement that solar nebular properties must be placed in the appropriate astrophysical context, an issue that is still central in our research approaches a quarter of a century later.

John received his undergraduate degree in metallurgy from the University of Birmingham and obtained his PhD in crystallography at the University of London in 1968. Following graduation, John was a research associate at NASA/Ames. Shortly thereafter, he joined the University of California, Los Angeles (UCLA), as a research geophysicist and later was appointed adjunct professor in the Department of Earth and Space Sciences (UCLA) and research associate at the California Space Institute, University of California, San Diego, positions that he held until his retirement. John also served in NASA's exobiology program for many years, and he was involved in the planning stage of an exobiology program for Mars. John is well known for his extensive work on the isotopic abundances of gases in the lunar regolith, and in particular for his attempts to understand the striking variability of implanted nitrogen. With the help of several colleagues, John carried out extensive studies of the isotopic abundances and origins of the elements H, C, and N in the organic matter of carbonaceous chondrites. In several papers, Kerridge and coworkers pointed out that the isotopic compositions of kerogen-like molecules most likely require a currently unknown environment. These papers suggested a possible origin in a molecular cloud environment, a model being actively investigated today.

In retirement, John kept abreast of developments in work on the solar compositions and on the currently unknown origin of the abundant nonsolar nitrogen component. He also enjoyed competing in vintage car races with his lovingly rebuilt 1926 Frazer-Nash. John is survived by his wife, Carol.

Kurt Marti and Kevin McKeegan

PETER EBERHARDT (1931–2013)



Peter Eberhardt received his PhD in 1956 from the University of Bern. As part of his thesis work on the decay products of natural technetium in molybdenite, Peter designed and built the first mass spectrometer at the Physics Institute. Peter became interested in meteorites, and after finishing his PhD, he did postdoctoral research in Chicago and La Jolla with Harold Urey. There he met his future wife, Anita. Back in Bern, he led, together with Johannes Geiss, the meteorite and lunar-sample research program and the work on the aluminum foils deployed on the lunar surface by the astronauts of Apollo 11 to 16. A more complete outline of Peter's scientific achievements can be found in the Leonard Medal citation by Edward Anders in *Meteoritics* 26, page 70 (1991).

Peter Eberhardt was an exceptionally good experimental physicist. Under his guidance, six more mass spectrometers for noble gas research were built. He was very systematic and careful, and he never published results that were not absolutely correct. He had a sixth sense for things that could go wrong in the laboratory. For example, he would rush into the lab, and his first words might be: "Why is the emission not on 200 mA?" And the student might say: "Oh, yes, I did not see!" Or a power failure could occur in the building, and within seconds he would be in the lab, ordering what to do to avoid damage to the mass spectrometers.

Later in his career, space research became important at the Physics Institute. Under Peter's guidance, mass spectrometers for high-altitude rockets, satellites, and space probes were designed, such as for the mission to the comet Giotto and the ongoing mission to the comet Churyumov-Gerasimenko. Unfortunately he will not experience the encounter, in 2014, of the Bernese ROSINA instrument with this comet. The research community thanks Peter Eberhardt for his commitment and devotion to our scientific goals.

Otto Eugster

STUDENT TRAVEL AWARDS

This year, 40 students attending the annual meeting of the Society in Edmonton, Alberta, Canada, received travel grants. Student travel grants and travel grants for scientists from countries with limited financial resources are generously sponsored by the Barringer Crater Company, the Planetary Studies Foundation, NASA (Cosmochemistry Program), The Meteoritical Society Endowment Fund, the International Mineral Collectors Association (Brian Mason Award), and the Royal Astronomical Society of Canada, Edmonton Centre.

Barringer Crater Company Awardees

Moritz Barth, Universität Münster
 Jean-David Bodéan, The Open University
 Edivaldo dos Santos Filho, Centro Brasileiro de Pesquisas Físicas
 Lauren Flor Tores, Universidad del Valle
 Christopher Fry, Carleton University
 Alexandre Garenne, Université Joseph Fourier
 Marian Horstmann, Universität Münster
 Melinda Krebsz, Hungarian Academy of Science
 Agata Krzesińska, Polish Academy of Sciences
 Haruka Kusuno, Risho University
 Kuljeet Kaur Marhas, Physical Research Laboratory
 Annemarie Pickersgill, Western University
 My Riebe, ETH Zürich
 Jared Shivak, University of Western Ontario
 Katrina van Drongelen, University of Toronto
 Niel Williams, The University of Manchester
 Yakovlev Grigoriy Alekseevica, Ural Federal University

Planetary Studies Foundation Awardees

Katherine Armstrong, Portland State University
 Nicole Lunning, University of Tennessee

NASA Cosmochemistry Program Awardees

Evan Groopman, Washington University
 Pierre Haenecour, Washington University in St. Louis
 Jangmi Han, University of New Mexico
 Romy Hanna, University of Texas in Austin
 Ellen Harju, University of California, Los Angeles
 Junko Isa, University of California, Los Angeles
 Christine Jilly, University of Hawai'i at Mānoa
 Josiah Lewis, Washington University in St. Louis
 Prajka Mane, Arizona State University
 Myriam Telus, University of Hawai'i at Mānoa
 Reto Trappitsch, University of Chicago
 Curtis Williams, Arizona State University
 Mahmet Yesiltas, University of Central Florida
 Tianhon Yu, Clemson University

Meteoritical Society Endowment Fund Awardees

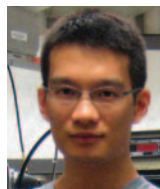
Mahaveer Sisodia, J. N. Vyas University, India
 Hasnaa Chennaoui Aoudjehane, Hassan II University, Morocco

Royal Astronomical Society of Canada, Edmonton Centre Awardees

Daniel Applin, University of Winnipeg
 Michael Bramble, Western University
 Maxim Ralchenko, Carleton University
 Diego Uribe, Western University

International Collectors Association – Brian Mason Award

In 1997, Joel Schiff, the first editor of the popular *Meteorite* magazine, created a travel award in honor of Brian Mason, who was born in New Zealand. The award is given to a student attending the annual meeting of the Society who submits an abstract that presents clearly explained, exciting results of particular interest to readers of *Meteorite* magazine. The recipient is required to write a popular account of his or her work for the magazine. Since 2008, the award has been generously funded by the International Meteorite Collectors Association.



Jinping Hu

This year the program committee for the Edmonton meeting selected Jinping (Joseph) Hu as the winner of the Brian Mason Award. A third-year graduate student at Arizona State University in Tempe, Arizona, USA, Jinping submitted an abstract entitled "Shock Metamorphism in L Chondrites above Shock Stage S6"; authors J. Hu, T. G. Sharp, and P. S. DeCarli. The paper discusses the effects of high postshock temperature and the annealing of high-pressure evidence in highly shocked ordinary chondrites ranging from shock stage S6 through whole-rock melting.

HANDBOOK OF IRON METEORITES NOW ONLINE

Electronic versions of volumes 1 and 2 of the *Handbook of Iron Meteorites*, by Vagn F. Buchwald, are now available at the University of Hawai'i website (<http://evols.library.manoa.hawaii.edu/handle/10524/33750>), or you can Google *Handbook of Iron Meteorites*. Volume 3 is still being scanned and will be up soon. Permission for scanning was granted by the copyright holder, Mini Wadhwa (Arizona State University Center for Meteorite Studies), and the NASA Cosmochemistry Program funded the project. Jeff Grossman and Ed Scott (University of Hawai'i) and John Wasson (UCLA) launched the website, which will be hosted by the University of Hawai'i.

The *Handbook of Iron Meteorites* was published in 1975 and, although no longer in print, is still an extraordinarily valuable resource. This monumental book contains 1426 pages, 2124 figures, eight appendices, and a supplement. Volume 1 provides a general introduction to meteorites, fireballs, and impact craters and to the mineralogy, composition, and properties of iron meteorites. It also contains appendices of information about iron meteorites. Volumes 2 and 3 contain descriptions of about 600 iron meteorites—nearly all those that were known and accessible in 1975. These descriptions include information about the structure, mineralogy, and composition of each iron meteorite, its discovery and subsequent history, and a list of museum holdings. A guide for users can be found on page 245 at the beginning of volume 2. At the end of volume 3, on pages 1376–1418, a supplement contains information about eleven meteorites studied by Vagn Buchwald after 1973, plus additional notes and photographs for a few other iron meteorites.

CALL FOR AWARD NOMINATIONS

Please consider nominating a colleague for one of the Society's awards. Nominations should be sent to Secretary Greg Herzog (metsec@gmail.com) by January 15 (January 31 for the Service Award and the Pellas-Ryder Award). For more information and details on how to submit a nomination for any of these awards, please see the latest Newsletter at the Society website or e-mail the secretary.

The Society gives a number of awards each year. The **Leonard Medal** honors outstanding contributions to the science of meteoritics and closely allied fields. The **Barringer Medal and Award** recognize outstanding work in the field of impact cratering and/or work that has led to a better understanding of impact phenomena. The **Nier Prize** recognizes outstanding research in meteorites and closely allied fields by scientists who are under 35 or within 7 years of the PhD. The **Service Award** honors members who have advanced the goals of the Meteoritical Society to promote research and education in meteoritics and planetary science in ways other than by conducting scientific research. The **Paul Pellas–Graham Ryder Award** is given for the best student paper in planetary science and is awarded jointly by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America.

<http://meteoriticalsociety.org>**2013 ANNUAL MEETING REPORT**

The 76th annual meeting of the Meteoritical Society was held in Edmonton, Canada, from July 29 to August 2, 2013, at the Chateau Lacombe Hotel and was hosted by the University of Alberta and MacEwan University. The Program Committee used the 366 abstracts submitted to create an exciting program, including new reports on Chelyabinsk and NWA 7034 (and paired) meteorites. Oral presentations were accommodated in two parallel sessions through to Friday afternoon, with poster sessions on Tuesday and Thursday evenings. The meeting was attended by 324 people from around the world, including 239 society members and nonmembers, 60 students, and 25 guests.



Perfect weather for the banquet evening

Thirty-eight students and two professionals from low-income countries were awarded travel funds totaling ~\$49,000, primarily through the support of the Barringer Crater Company, NASA Cosmochemistry, and the Meteoritical Society Endowment Fund. Four of the students were undergraduates from Canadian universities outside of Edmonton; their attendance was enabled by bursaries from the Royal Astronomical Society of Canada (RASC), Edmonton Centre.

The scientific program covered a wide range of topics, including chondrites and their components, textures, and models of formation; differentiated meteorites, lunar meteorites, and Martian meteorites; stable and radiogenic isotope constraints on Solar System formation and evolution; organic matter; shock processes recorded in Earth and planetary samples; secondary processes in asteroid parent bodies; meteorite exposure history, physical properties, and dynamical origins; and developments in analytical techniques for meteorite analysis. Special sessions included the topics of Chelyabinsk (fireball and associated meteorites), impact cratering, and advanced curation of current and future extraterrestrial samples. Everything was kept running smoothly by the ~25 volunteers (an interesting mix of university students and RASC members) and their coordinator, Dr. Amy Riches.

The Barringer Invitational Lecture was presented by Professor Peter Brown (University of Western Ontario) on the topic "Fireballs Producing Meteorites: From Tagish Lake to Chelyabinsk." The lecture was the perfect mixture of good science and general interest, and was very well received by ~400 meeting attendees and members of the public.

A limited-engagement meteorite exhibit was arranged in conjunction with the meeting and was held in the Gallery at Enterprise Square at the University of Alberta's downtown campus. The exhibit featured five specimens of Chelyabinsk (on loan from Russia thanks to Marina Ivanova) and a special selection of meteorites from the University of Alberta Meteorite Collection, including Tagish Lake, Bruderheim, Peace



Transport to the crater site required all-terrain vehicles with good drivers, as shown above.

PHOTO COURTESY OF BRIAN MOORE

Field trip participants standing along the inside wall of the Whitecourt Crater.

PHOTO COURTESY OF MURRAY PAULSON

River, Innisfree, and Vilna. The exhibit was open during the poster sessions, which were held in the same galleries. Over 600 members of the public viewed the exhibit over 5 days.

On Wednesday afternoon, participants explored the local area, with trips to the Fort Edmonton historic park, Elk Island National Park, and the Ukrainian Cultural Heritage Village; they also visited the cryogenic meteorite curation facility and ion probe lab on the University of Alberta campus. The banquet was held on the patio of the Centennial Centre for Interdisciplinary Science building at the University of Alberta, with the highlight being the fantastic weather, typical of an Edmonton summer evening.

Conference Field Trips

The preconference field trip to the K-T boundary layer in southern Alberta and the Royal Tyrrell Museum in Drumheller was a success thanks to leaders Roland Deschesne and Garren Dugan. Following the meeting, Chris Herd led a one-day trip to the Whitecourt Crater, with lots of help from the kind folks of Woodlands County and the town of Whitecourt. Several meteorites were found and lots of fun was had riding all-terrain vehicles. The trip concluded at the local casino, where the food was so good that even Christian Koeberl commented on it.

2013 SOCIETY AWARD WINNERS

The Society gives four major awards each year. For more information on individual awards, please see the Society web page.



The LEONARD MEDAL, which is the Society's highest and oldest award, is given to individuals who have made outstanding original contributions to the science of meteoritics or closely allied fields. It is named for Frederick C. Leonard, who was a founder and the first president of the Society. The 2013 winner of the Leonard Medal is **Ahmed El Goresy** of the University of Bayreuth, Germany, for his many contributions to improving our understanding of the mineralogy and petrology of meteorites and shocked rocks. The citation for this award was given by Catherine Caillet.

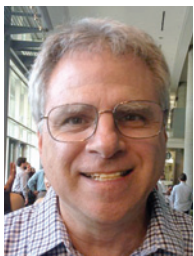


The BARRINGER MEDAL AND AWARD, sponsored by the Barringer Crater Company, were created in memory of D. Moreau Barringer Sr. and his son D. Moreau Barringer Jr. The award is given for outstanding work in the field of impact cratering. This year, the Barringer Award is given to **Walter Alvarez** of the University of California, Berkeley, USA, for his pivotal role in the discovery that the global K-Pg layer was produced by a large meteorite impact and for linking this impact

to the K-Pg mass extinction. The citation for this award was given by Christian Koeberl.



The NIER PRIZE recognizes young scientists in the field of meteoritics. This year's winner is **Audrey Bouvier** of the University of Western Ontario, Canada. Audrey receives her award for her significant contributions toward understanding the isotopic compositions of Solar System materials and the time-scales of their formation. The citation for Audrey's award was given by Meenakshi Wadhwa.



The METEORITICAL SOCIETY SERVICE AWARD is given this year to **Jeffrey Grossman** of NASA headquarters in Washington, DC, USA. Jeff receives this award for his outstanding contributions to the Meteoritical Society, to the Nomenclature Committee, and to the *Meteoritical Bulletin* in organizing and archiving meteorite nomenclature and classification and in database development and management. The citation for this award was given by Michael Weisberg.



The GORDON MCKAY AWARD for the best oral presentation by a student at the annual meeting of the Meteoritical Society is given to **Nicole Lunning** of the University of Tennessee, USA, for her talk at the 76th annual meeting in Edmonton entitled "Heterogeneity in the Vestan Regolith: Evidence from the GRO 95 HED Pairing Group." The award comes with a prize of US\$1000 and a certificate.



WILEY-BLACKWELL AWARDS worth US\$500 each and provided by Wiley-Blackwell, publishers of *Meteoritics and Planetary Science*, were given for outstanding presentations at the annual meeting in Edmonton. The four winners (LEFT TO RIGHT) were **Jinping Hu** (Arizona State University) for his talk entitled "Shock Metamorphism in L Chondrites Above Shock Stage S6," **Christine Jilly** (University of Hawai'i) for her talk, "In situ Radiometric Dating of Aqueously Formed Carbonates in Sutter's Mill," **Agata Krzesinska** (Polish Academy of Sciences) for her talk, "Multiple Impact Deformation of the Pultusk H-Chondrite," and **Niel Williams** (University of Manchester) for his talk, "Absolute and Mass-Dependent Titanium Isotope Compositions of Solar System Materials."

RENEW YOUR MEMBERSHIP NOW!

Please renew your membership by March 31, 2014; after that date, a \$15 late fee will be assessed. You can renew online at <http://metsoc.meteoriticalsociety.net>.

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BARRINGER FUND

The Barringer Crater Company (owners of The Barringer Meteorite Crater, also known as Meteor Crater) has established a special grants program to support field work by eligible students interested in the study of impact cratering processes. The Barringer Family Fund for Meteorite Impact Research will provide a small number (5–8) of competitive grants in the range of US\$3000–\$5000 for support of field research at known or suspected impact sites worldwide. Grant funds may be used to assist with travel and subsistence costs, as well as laboratory and computer analysis of research samples and findings. Master's doctoral, and postdoctoral students enrolled in formal university programs are eligible. Applications to the Fund are due by 4 April 2014, with notification of grant awards by 6 June 2014. Additional details about the Fund and the application process can be found at www.lpi.usra.edu/science/kring/Awards/Barringer_Fund.

ANNUAL MEETING SCHEDULE

- 2014, September 8–12, Casablanca, Morocco; www.metsoc2014casablanca.org
- 2015, July 27–31, Berkeley, California, USA
- 2016, August 7–12, Berlin, Germany
- 2017, Dates to be announced, Albuquerque or Santa Fe, New Mexico, USA