Japan Association of Mineralogical Sciences

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JAPAN ASSOCIATION OF MINERALOGICAL SCIENCES AWARDEES

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2016 society awards. The **Japan Association of Mineralogical Sciences Award** is presented to a maximum of two scientists in any one year for exceptional contributions to mineralogical and related sciences. The **Manjiro Watanabe Award is** named in honor of Professor Manjiro Watanabe (a distinguished Japanese mineralogist, and founded by his bequest) and is awarded every year to one scientist who has significantly contributed to mineralogical and related sciences over his or her entire career. The **Sakurai Medal is** named in honour of Dr. Kin-ichi Sakurai (a prolific discoverer of new minerals) and is awarded to one scientist who has made a great contribution to the study of new minerals.

Japan Association of Mineralogical Sciences Award to Tomo Katsura

Tomo Katsura, a professor at Bayerisches Geoinstitut, University of Bayreuth (Germany) is a mineral physicist who has studied the physical and chemical properties of mantle minerals under high-pressure and high-temperature conditions using multi-anvil presses. His innovative experimental techniques have provided many new insights into the structure and dynamics of Earth's deep mantle. For example, Prof. Katsura found that the Clapeyron slope of the post-spinel transition is much shallower than previously considered, and, therefore, that the 660 km discontinuity cannot be a barrier for mantle convection. He showed that the seismologically estimated thickness of the 410 km discontinuity is explained by the olivine–wadsleyite transition in the $(Mg,Fe)_2SiO_4$ system. He measured the thermal expansion coefficients of olivine, wadsleyite, ringwoodite, and bridgmanite under realistic high-temperature conditions for the Earth's mantle. Using these coefficients, he estimated the mantle's geotherms and showed that the adiabatic gradients generally decrease with increasing depth through the whole mantle, although it increases with mantle phase transitions. He determined the electrical conductivity of bridgmanite to interpret the lower-mantle's conductivity. His research group studied the proton conduction of olivine, wadsleyite, and ringwoodite to demonstrate that the contribution of proton conduction to mantle conductivity is small. His research group also demonstrated that the effects of water on both the lattice and the grain-boundary diffusions of silicon in forsterite are small, suggesting that the effects of water on mantle dynamics may be overestimated.

Japan Association of Mineralogical Sciences Award to Tadao Nishiyama

Tadao Nishiyama is a petrologist at Kumamoto University (Japan) who has studied rock textures from the standpoint of diffusion and reaction kinetics. He graduated from Kyushu University, obtained his master's degree in 1979 from Kanazawa University under the supervision of the late Prof. S. Banno, and then obtained his PhD from Kyushu University under the supervision of Prof. T. Yanagi and the late Prof. M. Yamaguchi. His doctoral thesis considered the application of a steady diffusion model to the olivine–plagioclase corona and an analysis of CO_2 metasomatism in a serpentinite melange. He has been at Johns Hopkins University in Baltimore (Maryland, USA) since 1988 as a visiting scientist, and has been deeply influenced by petrologists Lukas Baumgartner, Sakiko N. Olsen, John Ferry, and George W. Fisher. His studies with fellow Japanese petrologists Kazuhiro Miyazaki, Takeshi Ikeda, and others on the metamorphic rocks of the Nagasaki Prefecture form an important body of his lifework. In particular, collaborations with Miki Shigeno and Yasushi Mori shed new light on the genesis of jadeitites. Tadao Nishiyama also developed models for hydrofracturing, for the elastic interaction of a host–inclusion system (with Masaki Enami and Yui Kouketsu), and for uphill diffusion in a silicate melt. Recently, he has extended his research field to granites and continued the study with Takashi Yuguchi. He has been blessed with many excellent colleagues and students, including those listed above.

Manjiro Watanabe Award to Mizuhiko Akizuki

Mizuhiko Akizuki received his PhD degree in 1968 from Tohoku University: his doctoral thesis, "Studies of Some Minerals by Electron Microscopy", was supervised by Prof. Tsunehiko Takeuchi. From 2001, he has been an emeritus professor at Tohoku University. His research interests include crystal growth processes of natural minerals, with a focus on their internal textures. Dr. Akizuki pioneered the use of the transmission electron microscope (TEM) to make observations of the internal texture of natural minerals, and he developed original TEM techniques that he used in his own research, including a release-coat method using cellophane. He devoted his effort to experimental studies and microscopic and TEM observations, particularly studies on the texture formation process during the phase transition of sphalerite–wurtzite and the phase transformation mechanism of mica group minerals with increasing temperature. In addition, Dr. Akizuki has performed advanced research on optically anomalous minerals such as topaz, including research in 1978 on an optically anomalous topaz at Manchester University (UK), proposing that the growth sectors showing optical anomalies were caused by growth processes. After this study, he found many similar optically anomalous minerals with structural sectors, such as zeolite, garnet, and tourmaline. He showed that the texture is common in natural minerals. Moreover, Dr. Akizuki and his coworkers engaged in research on the structural refinement of each structural sector in optically anomalous minerals and identified the origin of the symmetry reduction for each case (e.g. Al–Si ordering in the tetrahedral sites of zeolite minerals). They concluded that these minerals are not "optically anomalous", they just have several different symmetries within the one crystal. Dr. Akizuki's studies have significantly advanced the field of mineralogy.

Sakurai Medal to Koichi Momma

The Sakurai Medal has been awarded to **Koichi Momma**, a researcher at the National Museum of Nature and Science in Tokyo (Japan), for his discovery of chibaite (International Mineralogical Association number IMA2008-067). Chibaite was discovered in the quartz and calcite veins developed in the Hota Group of the Miocene tuffaceous bed exposed in an area to the south of the Boso Peninsula, Japan. Chibaite is colorless, with a vitreous luster. It has no cleavage, and has a refractive index of 1.470(1). It is a unique mineral containing such hydrocarbon molecules as CH_4, C_2H_6, C_3H_8, and i-C_4H_{10} in its cage-like framework structure. The ideal formula is $SiO_2 \cdot n(CH_4, C_2H_6, C_3H_8, i\text{-}C_4H_{10})$ with $n_{max} = 3/17$. Chibaite is epitaxially intergrown with a minor amount of another silica clathrate mineral, bosoite (IMA2014-023), which was also discovered by Dr. Momma. Chibaite and bosoite are the second

and third examples of silica clathrate minerals found in nature. In the light of similarities in their occurrences and the sources of hydrocarbon gases included in them, as well as from the crystallochemical point of view, it is interesting to note that these three types of silica clathrate minerals known to date (melanophlogite, chibaite, and bosoite) are isotopological to the three types of natural gas hydrates (sI, sII, and sH, respectively).

Dr. Momma also contributed to the discoveries of shimazkiite (IMA2010-085a), magnesiorowlandite (IMA2012-010), minohlite (IMA2012-035), imayoshiite (IMA2013-069), iyoite (IMA2013-130), misakiite (IMA2013-131), and mieite (IMA2014-020).

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Original Articles

The K_2CO_3 fusion curve revisited: New experiments at pressures up to 12 GPa – Meili WANG, Qiong LIU, Toru INOUE, Baosheng LI, Samuel POTTISH, Justin WOOD, Cuiping YANG and Renbiao TAO

In situ observation, X–ray diffraction and Raman analyses of carbon minerals in ureilites: Origin and formation mechanisms of diamond in ureilites – Yoshihiro NAKAMUTA, Fumio KITAJIMA and Kazuhiko SHIMADA

Ti–rich biotite in spinel and quartz–bearing paragneiss and related rocks from the Mogok metamorphic belt, central Myanmar – Ye Kyaw THU, Maw Maw WIN, Masaki ENAMI and Motohiro TSUBOI

Hadean detrital zircon in the North China Craton – Zhuang LI, Bin CHEN and Chunjing WEI

Letters

Cation distribution in Mg–Zn olivine solid solution: a ^{29}Si MAS NMR and first–principles calculation study – Masami KANZAKI and Xianyu XUE

Self–diffusion of water molecules confined between quartz surfaces at elevated temperatures by molecular dynamics simulations – Satoru ISHIKAWA, Hiroshi SAKUMA and Noriyoshi TSUCHIYA

Sociedad Española de Mineralogía

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ENCIENDE–SEM AWARD

The ENCIENDE–SEM Award recognizes the best educational initiative or innovative action that promotes scientific careers in the field of the Earth sciences among children and young students at the primary and high school levels, especially in mineralogy, petrology and geochemistry. In 2016, this award has gone to the project **"Con los pies en el suelo. Geoquímica del suelo" [With your feet on the ground. Soil geochemistry]**, which was carried out by students at the IES Carpetania school in Yepes, Toledo. The project was coordinated by **Paloma Sepúlveda**, a teacher at the school, who has been very successful in familiarizing the students (15–16 years old) with the true wonder and nature of soil, something the general public know almost nothing about. The project coincided with the celebration of the International Year of Soils 2015. Soils support land life on our planet; they are very rich, full of life, and are a constantly changing ecosystem. And we humans need it for obtaining food, building materials and medications. It has very important functions in climate regulation and as a maintainer of equilibrium with water.

Student participants in the soil project prepare their samples.

Working in the lab.

The students analysed different soil samples in the laboratory and interpreted the results. According to Paloma Sepúlveda, the most important thing was not the results obtained from laboratory work but the experience that students acquired in handling materials and becoming aware of the vital role that soils play in ecosystems, conservation issues, and the needs of man. For more information, go to http://proyectosayc.wix.com/conlospiesenelsuelo.

The ENCIENDE–SEM Award, sponsored by the Spanish Mineralogical Society (SEM), is valued at €2,500 and will be given at the next SEM meeting in 2017.

SEM STUDENT GRANTS IN 2016

SEM awarded 7 student grants in 2016, totaling €3,000. Congratulations to **Sergio Carrero Romero** (Universidad de Huelva), **Pablo Cruz Hernández** (Universidad de Huelva), **Pablo del Buey Fernández** (Universidad Complutense), **Javier García Rivas** (Universidad de Salamanca), **Alba Lozano Letellier** (Instituto de Diagnóstico Ambiental y Estudios del Agua, CSIC), **Cristina Ruiz Agudo** (Universidad de Münster) and **Catalina Sánchez Roa** (Universidad de Jaén) for winning an SEM grant!