

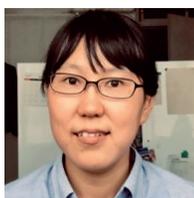


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## JAPAN ASSOCIATION OF MINERALOGICAL SCIENCES AWARDEES

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2020 society awards. The JAMS Award for Young Scientists is awarded to two scientists who are under 37 years of age and who have made exceptional contributions to mineralogical and related sciences. The JAMS Award for Applied Mineralogy is awarded to one scientist who has made a remarkable contribution to the field of applied mineralogy. The JAMS Research Paper Award is awarded to the authors of one or more excellent papers that were published in the *Journal of Mineralogical and Petrological Sciences (JMPS)* and/or *Ganseki-Kobutsu-Kagaku (GKK)* in the past three years.

### JAMS Award for Young Scientists to Miki Tasaka



Miki Tasaka is an associate professor at the Department of Geoscience in Shizuoka University (Shizuoka, Japan). She got her PhD degree from the University of Tokyo (Japan) under the supervision of Dr. Takehiko Hiraga. After that, she joined the rock and mineral physics research group of Professor David L. Kohlstedt at the University of Minnesota (USA) as a Japan Society for the Promotion of Science (JSPS) postdoctoral

researcher. Her main research interests are the diffusion, reactions, and deformation of the rocks and minerals of the mantle.

Tasaka's recent work on high-strain deformation experiments of olivine and pyroxene crystal aggregates demonstrated the process of forming well-mixed fine-grained aggregates during deformation. These series of deformation experiments demonstrated the importance of investigating the behavior of multiphase rocks and not simply single-phase materials. These studies provide insights into the changes in deformation mechanism that can arise as two phases mix during shear deformation. Tasaka demonstrated that as grains of different phases mix, grain growth is impeded and finer-grained materials (than expected) develop, which then deform by a grain boundary sliding mechanism that is sensitive to grain size.

An important emphasis of Tasaka's research is the application of results obtained from observations of microstructures in rocks deformed in nature combined with observations of microstructures and mechanical behavior of rocks deformed in the laboratory to understand how deformation is localized into shear zones. The ability to go between experiments carried out under well-controlled laboratory conditions to the application of these results to provide insight into deformation in nature is a powerful tool for understanding large-scale geological processes. Tasaka uses observations from nature to motivate new experiments and, conversely, observations made during laboratory experiments to provide a new understanding of natural processes.

### JAMS Award for Young Scientists to Aki Takigawa



Aki Takigawa is an associate professor at the Department of Earth and Planetary Science of the University of Tokyo (Japan). She studies the formation and alteration of circumstellar minerals and the origin of the Solar System's building blocks by combining experiments, analysing presolar grains, and making observations of circumstellar dust and dust formation environments. Takigawa experimentally examined the

anisotropy of evaporation and/or growth rates of corundum and forsterite in high-temperature and low-pressure conditions. She showed, based on her experiments, that the dust emission line with a peak at

13  $\mu\text{m}$ , whose origin has remained unresolved for many years, originates from condensed corundum. This is a notable contribution, showing that dust formation conditions can be distinguished observationally. Using the Atacama Large Millimeter Array telescope in Chile, Dr. Takigawa succeeded in imaging the physico-chemical environment of alumina dust formation, demonstrating the hypothesis that dust formation triggers mass-loss from stars. From the analysis of presolar corundum grains in primitive ordinary chondrites, she has discovered a subhedral presolar corundum grain surrounded by four rhombohedral {011} faces and a rough, rounded face with cavities. This subhedral shape is the first clear evidence that corundum condenses and grows to micrometer sizes in the extended atmospheres around so-called asymptotic giant branch (AGB) stars. The microstructures within the grain and minimal surface alteration indicates that this corundum is the most pristine circumstellar corundum studied to date.

### JAMS Award for Applied Mineralogy to Kenji Tamura



Kenji Tamura is a researcher at the National Institute for Materials Science (Tsukuba, Japan). He has developed hybrid materials by combining layered minerals (e.g., clays, micas, and layered double hydroxides) with organic material and applied these composites as functional adsorbents and environmentally friendly hybrid materials. For example, in order to improve the various properties of polymer materials (e.g., strength,

barrier properties, flame retardancy, fatigue life), the technology of hybridizing two or more substances on a microscopic and macroscopic scale is extremely effective. Dr. Tamura has developed a mica polymer nanocomposite that has properties that surpass those of conventional clay polymer nanocomposites by exfoliating the natural mica layers to form high-aspect-ratio nanosheets. He also developed polyamide/clay nanocomposites with practical flame retardancy and excellent mechanical properties by controlling the dispersion of clay nanosheets hierarchically in a polyamide matrix. His recent research has focused on techniques for adsorbing and concentrating various environmental pollutants and toxic substances. In particular, he has made significant advances in developing mica and clay minerals as adsorbents that can effectively remove radioactive cesium, phosphorus, and caffeine.

### JAMS Research Paper Award to Eiichi Takazawa and Katsuyoshi Michibayashi



The JAMS Research Paper Award goes to authors Eiichi Takazawa and Katsuyoshi Michibayashi for their paper "High Resolution X-ray Computed Tomography and Scanning Electron Microscopy Studies of Multiphase Solid Inclusions in Oman Podiform Chromitite: Implications for Post-Entrapment Modification", which was published in the 2020 *Journal of Mineralogical and Petrological Sciences* (v115, pp 247–260). Congratulations to both authors.