



Japan Association of Mineralogical Sciences

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AWARDS

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2024 society awards. The JAMS Award for Young Scientists is awarded to two scientists under 37 years of age 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 excellent papers published in the *Journal of Mineralogical and Petrological Sciences (JMPS)* and/or *Gansekki-Kobutsu-Kagaku (GKK)* in the past three years.

JAMS Award for Young Scientists to Ryosuke Oyanagi



Dr. Ryosuke Oyanagi is a lecturer at Kokushikan University, Japan. Dr. Oyanagi has made significant contributions to understanding rock–fluid interactions in subduction zones and the oceanic lithosphere, integrating field studies, hydrothermal experiments, and numerical modeling. His research on serpentinization kinetics has been pioneering, especially through experiments simulating open systems where mass transfer occurs (e.g., Oyanagi et al. 2020, *Geochim. Cosmochim. Acta*). By analyzing both reaction products and fluid compositions, he clarified the mechanisms driving serpentinization and quantitatively constrained the hydraulic feedback dynamics, such as porosity closure during reaction progress. In studies of subduction zone processes, Dr. Oyanagi examined feedbacks among mass transfer, reaction, and deformation at slab–mantle interfaces. Investigating ultramafic bodies in contact with pelitic schists in the Sanbagawa metamorphic belt, he combined petrography with whole-rock geochemical analyses (major and trace elements) to demonstrate that reaction zones at such boundaries formed through mass transfer between the two contrasting lithologies at the mantle wedge corner (Oyanagi et al. 2023, *Contrib. Mineral. Petrol.*). His research on deep carbon cycling and seismicity in subduction zones employs rock–fluid interaction models that treat deep metamorphic fluids as electrolytic solutions. Thermodynamic simulations along the thermal structures of the northeast and southwest Japan subduction zones revealed major differences in fluid composition and flux (Oyanagi and Okamoto 2024, *Nat. Commun.*). These variations strongly influence alteration mineralogy in the overriding mantle, suggesting that subducted carbon plays a key role in controlling the transition from seismic slip to stable sliding and linking deep carbon cycling with subduction dynamics.

JAMS Award for Young Scientists to Fumiya Noritake



Fumiya Noritake is an assistant professor at the University of Yamanashi (Japan). He obtained his PhD from Okayama University (Japan) under the supervision of Professor Katsuyuki Kawamura. He is interested in structural transitions and changes in the mechanical properties of silicate liquids at pressure. His series of molecular-dynamics studies revealed the diffusion mechanism of network-forming elements in silicate liquids, and its compositional/pressure dependence. Chemical state/species-wise analyses about dynamics revealed that oxygen atoms diffuse similarly to site exchange through the non-bridging oxygen state. By contrast, Si diffusion occurs gradually through network deformation during bond-exchange events. Si atoms also diffuse via reptation in silica-poor liquids. Moreover, he discussed the rate of Si–O bond exchange events and diffusivity of network-forming elements, and found two distinct

states in silicate liquids with different power laws. Silicate liquids with low SiO₂ content at lower pressure act like simple liquids because the relationship between the Si–O bond exchange rate and diffusivity is linear. However, this relation becomes non-linear in liquids with high SiO₂ content and at higher pressure. He is now trying to develop a method to quantitatively analyze bond-exchange events. His recent work introduces the concept of bond-breaking/forming particles and their pair-correlation functions with both radial and angular parts. This concept can classify Si–O bond exchange motions and evaluate their contribution to diffusion.

JAMS Award for Applied Mineralogy to Yusuke Seto



Yusuke Seto has developed and released a variety of non-commercial open-source software over many years, based on mineralogy and crystallography (<https://github.com/seto77/>). These software tools have been widely used not only in the field of mineral sciences, but also in solid-state physics, materials science, high-pressure science, and related educational fields, continuing to the present day. One of his representative software programs is *Recipro*. This software offers a comprehensive set of features for crystal structure analysis, including X-ray and electron diffraction simulations, electron microscopy image simulation, diffraction pattern analysis, and 3D crystal structure visualization. It also features an interface that synchronizes crystal orientations in real time across all functions, making it user-friendly even for beginners in electron microscopy. At the same time, thanks to its implementation of dynamical electron scattering based on the Bloch wave method, *Recipro* also supports advanced simulations, such as convergent beam electron diffraction (CBED) patterns and high-angle annular dark-field (HAADF) images, and is therefore widely used by experts as well. With more than 3,000 downloads per year, *Recipro* is now one of the most widely used tools in the field of electron microscopy.

JAMS Research Paper Award to Taichi Kawashima, Kazuya Shimooka, Toko Fukui, and Satoshi Saito



The JAMS Research Paper Award goes to authors Taichi Kawashima, Kazuya Shimooka, Toko Fukui, and Satoshi Saito for their paper, “Water contents and pressures of melts in unerupted felsic magma constrained by SEM-EDS analysis of homogenized melt inclusions in zircon,” which was published in *JMPS* in 2024 (<https://doi.org/10.2465/jmps.230904>).

JAMS Research Paper Award to M. Satish-Kumar



The JAMS Research Paper Award goes to author M. Satish-Kumar for their paper, “Carbon isotopic composition of graphite in metamorphic rocks from Lützw-Holm Complex, East Antarctica: Implications for carbon geodynamic cycle in continental crust,” which was published in *JMPS* in 2023 (<https://doi.org/10.2465/jmps.230401>).