



# Japan Association of Mineralogical Sciences

<http://jams.la.coocan.jp>

## JAPAN ASSOCIATION OF MINERALOGICAL SCIENCES AWARDEES

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2013 society awards. The **Japan Association of Mineralogical Sciences Award** is given to two scientists (maximum) per year for exceptional contributions to the mineralogical and related sciences. The **Manjiro Watanabe Award**—named in honor of Professor Manjiro Watanabe, a famous Japanese mineralogist, and funded by his contribution—is awarded every year to one scientist who has contributed significantly to the mineralogical and related sciences over his/her long career.

### Japan Association of Mineralogical Sciences Award to Ritsuro Miyawaki



**Ritsuro Miyawaki**, of the National Museum of Nature and Science, Japan, is a chemist and crystallographer who has studied the crystal chemistry of rare earth (RE) minerals. He has been involved in the description of more than thirty new mineral species, of which one-third are RE minerals: kimuraite-(Y), kozoite-(Nd), bastnäsite-(Nd), hingganite-(Ce), uedaite-(Ce), iwashiroite-(Ce), magnesiorowlandite-(Y), and others. He has determined crystal structures

to clarify the nomenclature of inadequately described RE minerals, such as tengerite-(Y) and rowlandite-(Y). He began his research on RE minerals with an undetermined hercynite-like mineral found in a granitic pegmatite in Gifu Prefecture. Later on, the mineral was described as hingganite-(Ce), a new member of the gadolinite–datolite group. He carried out a structural refinement of gadolinite-(Y) and compared the structure with the structures of other members of the gadolinite–datolite group; the result was published in 1984 as his first contribution to mineralogy. He reviewed a total of more than 100 crystal structures of RE minerals. He demonstrated differences in structural features, such as coordination numbers and coordination polyhedra, in the crystal structures of RE minerals containing the smaller Y or the larger Ce ion. He pointed out that the slight difference in ion size, which is related to the lanthanoid contraction, apparently affects the crystal structure of RE minerals without infinite 3- or 2-dimensional frameworks, i.e. carbonates and phosphates; on the other hand, RE minerals with tight frameworks, such as silicates and niobates, usually form the same crystal structure even with varied RE ionic sizes.

### Japan Association of Mineralogical Sciences Award to Hiroko Nagahara



**Hiroko Nagahara** is a professor in the Department of Earth and Planetary Science at the University of Tokyo, Japan. She has been working on material evolution in the early Solar System, which includes petrology–mineralogy, experiments, and theoretical study. She found relict minerals in chondrules, which was a pioneering work showing that chondrules were formed by remelting of preexisting mineral aggregates, that the heating temperature

was near the liquidus, and that the duration of heating was short enough to retain partially dissolved minerals. Further, she experimentally demonstrated plausible temperatures and a cooling timescale. Later, she found evidence for condensation of elements during cooling and crystallization, which showed that the chondrule melt was interacting with ambient gas. Nagahara has developed a new research field in cosmochemistry, with collaborators Kazuhito Ozawa and Shogo

Tachibana, to model evaporation and condensation processes on the basis of experiments. They constructed vacuum furnaces and succeeded in obtaining kinetic parameters for the major planetary minerals forsterite, enstatite, corundum, and metallic iron, which enabled them to model the compositional change of minerals and melts interacting with ambient gas during heating and cooling in the protoplanetary disk. They showed the significance of hydrogen for the reaction rate and the importance of mineral anisotropy. Nagahara is currently working on the chemical evolution of solid materials, including organic materials, during the physical evolution of the protoplanetary disk.

### Manjiro Watanabe Award to Takeo Matsumoto



**Takeo Matsumoto** received a doctor of science degree in 1962 from the University of Tokyo on the subject “The study on the application of Ito’s method to analyze powder X-ray diffraction data,” under the supervision of Profs. T. Ito and R. Sadanaga. He then accepted an academic position in the Faculty of Science at the University of Tokyo. He worked at Bern University in Switzerland as a visiting researcher from 1964 to 1968; during this time,

he studied the densest packing of the three-dimensional ellipsoid and published a paper entitled “On densest packing of ellipsoids.” This paper made a large contribution to the field of mathematical and theoretical crystallography. He moved to Kanazawa University in 1968 and began the structural analysis of various crystals, providing important crystallographic data. At the same time, he continued to study mathematical and theoretical crystallography, in areas such as the statistical distribution of symmetrical groups, the higher-dimensional space group, the packing of ellipsoids, and crystallographic orbits. In particular, he published “Non-characteristic orbits for all space groups” in 1984 with his colleagues (Engel, Steinmann, and Wondratschek). In 1992–1993, he superintended the project “General research on experimental and theoretical studies for macro and micro structure and physical properties of minerals.” He successfully analyzed the crystal structure of micron-scale crystals and found a new technique for the determination of the Laue group. He continues to carry out research, with his coworkers, on the deformation of sphere-packing structures and on heterogeneous cylinder packing.

## JOURNAL OF MINERALOGICAL AND PETROLOGICAL SCIENCES

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X-ray Rietveld and  $^{57}\text{Fe}$  Mössbauer study of babingtonite from Kouragahana, Shimane Peninsula, Japan

Masahide AKASAKA, Takehiko KIMURA, and Mariko NAGASHIMA

Microstructural evolution of carbonaceous material during graphitization in the Gyoja-yama contact aureole: HRTEM, XRD and Raman spectroscopic study

Yoshihiro NAKAMURA and Junji AKAI

Viscosity changes during crystallization of a shoshonitic magma: new insights on lava flow emplacement

Francesco VETERE, Hiroaki SATO, Hidemi ISHIBASHI, Rosanna DE ROSA, and Paola DONATO



Hizenite-(Y),  $\text{Ca}_2\text{Y}_6(\text{CO}_3)_{11} \cdot 14\text{H}_2\text{O}$ , a new mineral in alkali olivine basalt from Mitsukoshi, Karatsu, Saga Prefecture, Japan  
Yasuhiro TAKAI and Seiichiro UEHARA

## LETTERS

**Evidence of the lawsonite eclogite facies metamorphism from an epidote-glaucophane eclogite in the Kotsu area of the Sanbagawa belt, Japan**

Shigeki TSUCHIYA and Takao HIRAJIMA

**Oxygen fugacity and valence state of chromium in ferropericlasite: Can  $\text{Cr}^{2+}$  be a redox indicator for the deep mantle?**

Hiroyuki KAGI, Shoko ODAKE, Hidemi ISHIBASHI, Katsumi SHOZUGAWA, Motoyuki MATSUO, Wataru SATAKE, and Takashi MIKOUCHI

**U-Pb detrital zircon dating of pelitic schists and quartzite from the Kurosegawa Tectonic Zone, Southwest Japan**

Aya YOSHIMOTO, Yasuhito OSANAI, Nobuhiko NAKANO, Tatsuro ADACHI, Kazuhiro YONEMURA, and Hideo ISHIZUKA

**EPMA U-Th-Pb monazite dating of metamorphic rocks from the Mogok Metamorphic Belt, central Myanmar**

Kazuhiro YONEMURA, Yasuhito OSANAI, Nobuhiko NAKANO, Tatsuro ADACHI, Punya CHARUSIRI, and Tun Naing ZAW

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## ORIGINAL ARTICLES

**High-pressure garnet amphibolite from the Funaokayama unit, western Kii Peninsula and the extent of eclogite facies metamorphism in the Sanbagawa belt**

Shunsuke ENDO, Izabella NOWAK, and Simon R. WALLIS

**Melting of the Martian mantle from 1.0 to 4.5 GPa**

Kyoko N. MATSUKAGE, Yoko NAGAYO, Matthew L. WHITAKER, Eiichi TAKAHASHI, and Toshisuke KAWASAKI

**Cr-rich magnesioaktophorite as an indicator of mantle metasomatism by hydrous Na-rich carbonatite**

Murad ALI and Shoji ARAI

**Dendritic magnetite crystals in rapid quenched fine spherules produced by falling experiments through the high temperature furnace with controlled gas flow.**

Hiroshi ISOBE and Takaaki GONDO

## LETTER

**Li tourmaline from Nagatate, Fukuoka Prefecture, Japan**

Yohei SHIROSE and Seiichiro UEHARA

## ASIA OCEANIA GEOSCIENCES SOCIETY 11<sup>th</sup> Annual Meeting

Sapporo, Japan

28 July–August 1, 2014

[www.asiaoceania.org/society/index.asp](http://www.asiaoceania.org/society/index.asp)

## GENERAL ASSEMBLY OF THE SOCIÉTÉ FRANÇAISE DE MINÉRALOGIE ET DE CRISTALLOGRAPHIE

The general assembly of the SFMC was held at the Université Pierre et Marie Curie, Paris, on 2 July 2013. Marc Blanchard, secretary, welcomed the members in the name of Bruno Goffé, president of the Society. The 2012 budget was presented by Stéphanie Rossano, treasurer. Then, Marc Blanchard reported on the main actions in 2012. The most remarkable event organized by the Society was the third edition of Serpentine Days, held on Porquerolles Island, France, on 2–6 September 2012 (see *Elements* v8n6). The implication of the Society in conferences and schools was also detailed at the meeting. After these formal reports, the Haüy-Lacroix Prize for the year's best PhD theses in mineralogy was awarded by Etienne Balan, jury chairman, to Julien Feneyrol and Pierre Lanari (photo). The two laureates gave short overviews of their work, followed by general presentations on the topics by their supervisors, Gaston Giuliani and Olivier Vidal.



Left to right: Julien Feneyrol, Etienne Balan, and Pierre Lanari

**Julien Feneyrol** (Université de Lorraine) – “Pétrologie, géochimie et genèse des gisements de tsavorite associés aux gneiss et roches calcosilicatées graphiteux de Lemshuku et Namalulu (Tanzanie)”

Tsavorite is a (V, Cr, Mn)-bearing green grossular and a gemstone mined within the Neoproterozoic Mozambique belt. A complete study of the Lemshuku and Namalulu deposits in northeastern Tanzania shows that tsavorite deposits formed during metamorphism and metasomatism of silico-calcareous sedimentary sequences, enriched in organic matter and containing evaporite intercalations, which are interpreted as coastal-marine sabkha formations on the eastern margin of Congo and Kalahari cratons during Neoproterozoic time (<http://neon.cprg.cnrs-nancy.fr/MEMOIRES>).

**Pierre Lanari** (Université de Grenoble) – “Micro-cartographie  $P$ - $T$ - $\epsilon$  dans les roches métamorphiques: Applications aux Alpes et à l’Himalaya”.

The topic of this thesis is the construction of detailed  $P$ - $T$  paths in metamorphic rocks by combining forward and inverse modelling techniques using micro-structural characterization of successive local equilibria and a micro-mapping approach. New solid solution models were derived and a set of programs was developed, such as XMapTools for the microprobe X-ray image processing, which were successfully used to decipher the metamorphic history of metamorphic rocks from the Alps and the Himalaya (<http://tel.archives-ouvertes.fr>).