IMA 2022
Proposals for Scientific Sessions

A) Full title of the session
The Role of Fluids in Earth and Planetary Processes

B) Brief description of the session for publication on the Web site
The session is related to the study of fluids and melts on Earth and other bodies in the solar system for reconstruction of magma evolution, metamorphism, ore formation, sedimentary basin evolution, subduction processes, origin of life, etc.

C) Rationale for the session, including a brief statement of the relevance and expected interest level
Fluids in Earth and planetary systems represents one of the most dynamic research areas in the earth and planetary sciences. Understanding the properties and distribution of fluids allows researchers to better understand complex processes associated with mineral-melt-fluid processes, including precipitation, dissolution and mineral transformation by a variety of chemical reactions. Earth scientists use various approaches to study fluids in Earth and planetary systems. The most powerful are experimental mineralogy and geochemistry and the study of fluid and melt inclusions in minerals. The latter are unique sources of information concerning the composition and properties of fluids present at the time of mineral formation. Composition, physical and thermodynamic properties of fluids and their mass and energy transport capabilities are important to a variety of geochemical and geophysical processes, including the origin of mineral deposits, magma crystallization, metamorphism and metasomatism, geophysical properties of rocks and minerals, and the origin of life itself. Thus, this session topic is relevant to the General Meeting of the IMA because the study of fluids in geological processes is an active research topic in the global mineralogical community. Many laboratories and individual researchers focus their studies on experiments in fluid systems, while others study fluid evolution based on mineral compositions and the occurrence of fluid and melt inclusions in minerals. The proposed session is expected to generate a high level of interest owing to the importance of fluids in a broad range of geologic processes in Earth and planetary systems.

D) Names of potential organizers/session chairs of the session:
1. Robert J. Bodnar, Professor, Fluids Research Laboratory, Department of Geosciences, Virginia Tech, Blacksburg, VA USA
2. Pavel Plechov, Professor, Fersman's Mineralogical Museum of Russian Academy of Sciences, Russia
3. Sergey Smirnov, Professor, IMA Council Member, Institute of Geology and Mineralogy Siberian Branch of Russian Academy of Sciences

E) Names of prospective invited speakers.
Alex Sobolev
Ilya Veksler
Maxim Portnyagin
Jake Hanley
Matt Steele-MacInnis
Martin Appold

Sabina Strmic-Palinkas
Gulcan Bozkaya
John Mavrogenes
Andreas Audétat
Maria Luce Frezzotti
Michael Zolensky

F) Relationship to other potential sessions/fields. Expected impact and attendance.
The topic of the proposed session is related to the sessions dedicated to ore-deposit formation, mineral crystallization from aqueous fluids and melts, thermodynamics of magmatic and hydrothermal processes, gemology, water in the mantle, subduction processes, the search for extraterrestrial water and life, and others. The number of abstract submissions and attendance at this session is expected to be significant. As an example, a session on "Fluids and Melts" organized by Robert J. Bodnar for the Goldschmidt Conference in Montreal, Canada, in 2012, had the largest number presentations of all sessions at the conference and included three days of oral and poster presentations.

G) Scientific journals that may be asked/willing to publish selected contributions from the session.

Chemical Geology
Lithos
Geochimica et Cosmochimica Acta
Contributions to Mineralogy and Petrology
Minerals
American Mineralogist