

**IMA**  
**COMMISSION ON PHYSICS OF MINERALS, (CPM)**

**ANNUAL REPORT FOR 2009 TO IUGS**

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Report of CPM activity in 2009: 2009 12/1

**1. Commission of Physics of Minerals**

The current officers of the CPM is Eiji Ohtani (ohtani@mail.tains.tohoku.ac.jp) as Chairman, Daniel Neuville (neuville@ipgp.jussieu.fr) as Vice-Chairman and Suzan Schorr (sschorr@uni-leipzig.de) as Secretary

Besides the three Officers, the commission has 9 members.

**2. Overall objectives of our commission**

The Commission on Physics of Minerals was established for the promotion of the application of modern solid state physics to minerals at low and high temperatures as well as at high pressures and dynamics of the earth and planetary interior by workshop, conferences and publications.

**3. Main accomplishments in 2009**

(1) CPM played following active roles in international and local meetings during 2008-2009. CPM organized and convened sessions in the following meetings:

- 1) Dec. 14-20 2008 AGU fall meeting at San Francisco: Eiji Ohtani organizes a session on melt and fluid at high pressure with Hans Mueller, Yanbin Wang, Charles Lesher. Eiji Ohtani makes an invited talk in the sessions of Spin transition in the lower mantle, and he also makes an invited poster in the session of the deep water cycle.
- 2) Daniel Neuville organized a glass and melt session in 2009 AGU Spring meeting at Toronto, May, 2009.
- 3) E. Ohtani and Y. Fei organized a session on core and core-mantle boundary at SMEC 2009 meeting at FIU. March 29-April 2, Florida, USA.
- 4) E. Ohtani et al. made invited talk at the SMEC 2009 meeting, Silicon content of the core based on the phase relation and density measurement of solid and molten FeSi and FeNiSi alloys (*Invited*). SMEC 2009 Study of Matters at Extreme Conditions. March 29-April 2, Florida, USA.
- 5) CPM organizes two sessions on Physics and Chemistry of Earth's Minerals and one international session on dynamics of the Earth's interior. 2009 at the JpGU (Japan Geoscience union) annual meeting held at Makuhari, Chiba, Japan on 16-21<sup>th</sup>, May, 2009.
- 6) E. Ohtani presented an invited talk: E. Ohtani: Compression of silicate and metallic liquids at ultrahigh pressure: their importance in Earth Science (*Invited*). WDM2009 *INTERNATIONAL WORKSHOP on WARM DENSE MATTER*. March 15-19 2009, Hakone, Japan
- 7) E. Ohtani worked as a member of local program committee for AIRAPT 22 meeting held in July 27-30, 2009.
- 8) E. Ohtani presented an invited talk at 2009 AGU fall meeting: Ohtani et al., Formation of High pressure polymorphs of olivine and pyroxene in shocked meteorites and applications to collision of their parent bodies (*Invited*). 2009 AGU fall meeting. San Francisco, USA, Dec. 14-18, 2009.
- 9) E. Ohtani presented an invited talk: Ohtani et al., Distribution of Hydrogen in the Deep Earth and its Role in Earth's dynamics (*Invited*). 2009 AGU fall meeting. San Francisco, USA, Dec. 14-18, 2009.

(2) Bulletins, News, and Website: Website of CPM is established in 2003 and continuously maintained for communication of the members.

Publication:

- 1) Special issues: We published the proceedings volume of High Pressure Mineral Physics Seminar-7

(Editors, E. Ohtani, D. Andrault, P. Asimow, L. Stixrude, and Y. Wang) as a special issue of Phys. Earth Planet. Inter., vol. 174, 2009.

2) Xue, Henderson, Giorso organise at the Goldsmith and Henderson and Neuville try to promote an issue on amorphous materials in the American Mineralogist following the discussion in the meeting "Frontier in Mineral Science" in Cambridge and support by the CPM.

#### **4. Work plan for 2010**

1) CPM (Ohtani) organized three sessions at 2010 JPGU International symposium to be held in 20-25, May 2010. (1) Don Dingwell, Paul. D. Asimov, and E. Ohtani, organizes a session "Molten Earth" (2) Razvan, Nakajima, Ohtani organized a session "Water in the subduction zone in big mantle wedge" as a JpGU-EGU joint session. (3) Ohtani, Tatsumi, and Hemley organize a session "Deep Carbon Cycle" at 2010JpGU International symposium.

2) CPM (Ohtani) worked a member of the program committee of VGP section of WPGM, and organizes two sessions in VGP section at 2010 WPGM Taipei committee: (1) Lee, Ohtani, Mysen, Lether organize a session "Structure and Properties of Melts and Glasses on the Earth's Surfaces & its Interior". (2) Chen, Kun, Jackson, Irifune, Ohtani organize a session "composition of the Earth's Deep Interior".

3) CPM organizes four sessions at 2010 IMA Budapest meeting. (1) Session ID: AM3 Daniel R. NEUVILLE (IMA-CPM), Grant S. HENDERSON; Title: Structure and properties of silicate glasses and melts: from laboratory to volcanic activities. (2) Razvan Caracas, Jay Bass, Kei Hirose, Mineralogy of the Deep Earth; (3) Gerd Steinle-Neumann, Yingwei Fei, Eiji Ohtani convene a Session ID: DE1: Planetary Cores; (4) Geiger, Dachs, Tsuchiya organize a session TH131 "Thermodynamic behavior of Earth Materials."

4) R. Morreto, M, Wilke and Neuville organise a session on the glass and melts at the EGU in Vienne

#### **5 List of Officers and National Representatives**

The current officers of the CPM is, Eiji Ohtani as Chair

([ohtani@mail.tains.tohoku.ac.jp](mailto:ohtani@mail.tains.tohoku.ac.jp)), Daniel Neuville as Vice-Chairman ([neuville@ipgp.jussieu.fr](mailto:neuville@ipgp.jussieu.fr)), and Suzan Schorr ([sschorr@uni-leipzig.de](mailto:sschorr@uni-leipzig.de)) as Secretary.

Besides the three Officers, the commission has 9 members. The addresses for the members are as follows:

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Takamitsu YAMANAKA (Prof. Yamanaka is the next president of IMA, and a member will be replaced,  
please confirm!)

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