

第4回極限物質科学研究会
The 4th Workshop for Extreme Materials Science
“Thermal Conductivity of Earth”

Date: 10:30-16:00 Dec. 13th (Tue), 2016.

2016年12月13日(火)

Place: Seminar Room (224,226), Main Bldg. (C01) 2F, Riken, Wako.

理研和光 本館2階セミナー室(224,226) 建物番号C01

http://www.riken.jp/en/access/wako-map/#campus_map

Organizer: Toshiaki Iitaka (tiitaka@riken.jp)

Participation: Free

Sponsor: **Post-K Computer Challenging Problems, “Challenge of Basic Science”**,

Subproject C “Structure and Properties of Materials in deep Earth and Planets”

ポスト「京」萌芽的課題「基礎科学の挑戦」

サブ課題C「地球惑星深部物質の構造と物性」

<http://www.iitaka.org/~xmat/en/>

Co-Sponsor: Interdisciplinary Theoretical Science Research Group (iTHES),

理論科学連携研究推進グループ (iTHES)

http://www.riken.jp/en/research/labs/rg/inter_theor_sci/

Scope

Thermal conductivity is one of the most important physical properties of the materials in the deep Earth, which controls the cooling rate of the Earth's core and hence the long-term thermal evolution of Earth. However, the thermal conductivities of materials under such extreme conditions are not well constrained due to technical difficulties of experiment at such high pressure and temperature. In this workshop, we discuss experimental and theoretical efforts to estimate the thermal conductivity of Earth.

<http://dx.doi.org/10.1038/534045a>

Program

10:30-10:40 Toshiaki IITAKA: Opening

10:40-11:40 Hitoshi GOMI (Okayama Univ.)

Resistivity saturation and thermal conductivity of the Earth's core

<http://dx.doi.org/10.1016/j.epsl.2016.07.011>

<http://dx.doi.org/10.1016/j.pepi.2013.07.010>

<http://dx.doi.org/10.1016/j.pepi.2015.04.003>

(Lunch)

12:40-13:40 John Sak TSE (Univ. Saskatoon)

Thermal conductivity of materials in the deep Earth

<http://physics.usask.ca/~tsej/>

<http://dx.doi.org/10.1103/PhysRevLett.85.114>

13:50-14:50 Terumasa TADANO (CMI2, NIMS)

First-principles modeling of phonon transport and lattice anharmonicity in energy harvesting materials

<http://www.nims.go.jp/MII-I/index.html>

<https://doi.org/10.1103/PhysRevLett.114.095501>

<http://alamode.readthedocs.io/en/latest/intro.html>

15:00-16:00 Hiroki MATSUBARA (Tohoku Univ.)

Understanding Thermal Conductivity of Liquids from the Molecular-level Heat Transfer — A Molecular Dynamics Analysis

<http://www.ifs.tohoku.ac.jp/mht/>

<http://dx.doi.org/10.1016/j.fluid.2016.03.019>

John Sak Tse: Closing