

平成 20 年 5 月 9 日

応用物理学会北海道支部
会員各位

応用物理学会北海道支部

講演会のお知らせ

下記講演会を開催いたしますので、多数ご参加下さいますようご案内申し上げます。

演題: Complex Crystals and Quasicrystals in a Simple Model System

講師: Dr. Michael Engel

シュトゥットガルト大学、理論・応用物理学研究所、研究員・

日本学術振興会、外国人特別研究員(九州大学)

日時: 平成 20 年 6 月 5 日(木) 15:00 ~ 16:30

場所: 北海道大学工学部 A 棟 物理工学系会議室 1 (A3-62)

主催: 応用物理学会北海道支部、後援: 日本金属学会北海道支部

講演の要旨

Complex crystals and quasicrystals are ordered states of matter with very large or even infinite unit cells. As a consequence, the particle dynamics differ significantly from what is known for simple crystals. In order to understand their behavior at an elementary level, we introduce a simple model system, which consists of identical particles moving in two dimensions. As interaction function, a double-well potential called Lennard-Jones-Gauss potential is chosen. The potential shape is similar to typical effective potentials as found in metals and is determined by three parameters. By varying the parameters and using molecular dynamics simulations, it is shown that many complex crystals and quasicrystals occur naturally in the model system. Their growth and dynamics are discussed and illustrated by interactive simulations. Different solid-solid transformation mechanisms have been observed.

Recent Publication: M. Engel and H.R. Trebin, Self-Assembly of Monatomic Complex Crystals and Quasicrystals with a Double-Well Interaction Potential, PRL 98, 225505 (2007).

世話人 柏本 史郎
北海道大学大学院工学研究科応用物理学専攻
(内線: 6 6 4 5) kasimoto@eng.hokudai.ac.jp