
S E M I N A R

on

Semiconductor Physics and Nanotechnology

Mo, 28.11.2022, 11:15 Uhr,

Seminar in
person in the Physics lecture hall or via Zoom

“Several applications of segregation on production of Si-based energy materials”

Boyuan Ban ^{1,2}

¹ *Hefei Institutes of Physical Science, Chinese Academy of Sciences, China*

² *Institute of Physics, Montanuniversität Leoben*

Si is the basic material for semiconductor and photovoltaic industries. Since it occurs as SiO₂ under natural conditions, the preparation of high purity Si is the key problem. By application of segregation in the Al-Si alloy, a new technology coupling alloy solvent refining, microalloying, and multiple fields enhancement is proposed to achieve simultaneous and efficient removal of metal/nonmetal impurities. According to this purification theory, we studied other applications on mineral separation to help locating the potential high-quality mining area of quartz. Furthermore, we found the formation of Si phases with fine grains (nanosize) and different structures (branch/flakes/porous) under non-equilibrium solidification with the addition of certain elements (e.g. Ca and Sr). Based on that idea, a new method of non-equilibrium refinement solidification is proposed to realize the low-cost and large-scale preparation of high-performance silicon anodes for Li-ion batteries.

Zoom – Link:

<https://zoom.us/j/96375934537?pwd=RTIKTWhSdzRHU211YTY1bGFxTUtpZz09>

Meeting-ID: [963 7593 4537](#)

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