Call for Papers

The Open Thermodynamics Journal

Special Issue On:
Thermodynamic properties of crystals and the rule of interaction potentials in their prediction

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The Open Thermodynamics Journal (TOTHERJ) invites authors to submit articles on:
- Rare Gas Solids Physical Properties At Low Pressures,
- Rare Gas Solids Physical Properties At High Temperatures,
- Rare Gas Solids Physical And Chemical Properties At High Pressures,
- Phase Transition In Rare Gas Crystals,
- Crystal Defects In Rare Gas Crystals,
- Interaction Potentials In Rare Gas Crystals,
- Theoretical Approaches In Rare Gas Crystals,
- Anharmonic Effects In Rare Gas Crystals.

Aims & Scope:
The rare gas solids are the simplest of all molecular solids. At low temperatures, the rare gas atoms form van der Waals crystals of the fcc structure except helium, which crystallizes to the hcp structure. The crystal structure and the binding energy of rare gas solids have been determined very accurately by experiments. It has been found that two-body potentials can describe these properties very well. Although the two-body potentials underestimate the binding energy by a few percent, the inclusion of the three-body potentials as a small correction reduces the error to within one percent. These crystals have been studied extensively in many areas of physics as they are excellent candidates to be the test-bed of theoretical models in relation to the experiments even when delicate balances occur, e.g., phase transition. When the temperature rises up to room temperature the question regarding the physical and chemical properties at high pressures rises also. Recently, the development of Brillouin spectroscopy in conjunction with diamond-anvil cells (DAC's) opened the door for investigating the elastic properties of rare gas solids at high pressures, which may be important for earth and planetary sciences.
As van der Waals crystals are excellent candidates to be the test-bed of theoretical models in relation to the experiments it is important to
It is therefore high time to focus on the current state of theoretical and experimental investigations of rare gas solids physical and chemical properties at low and high temperatures and pressures. This special issue will shed a light on some of the mentioned above questions.

Keywords: rare gas solids, thermodynamic properties, high temperatures, high pressures.

Tentative Subtopics:

Research articles and review papers are invited on topics including, but not restricted to, the following areas:

1. Thermodynamic properties of rare gas solids at temperatures up to melting point and atmospheric pressure.
2. Thermodynamic properties of rare gas solids up to the room temperature.
3. Thermodynamic properties of rare gas solids at high pressures.
4. Phase transitions in rare gas crystals.
5. Point defects in rare gas crystals.
6. Thermodynamic properties of rare gas solids with surfaces.
7. Experimental and theoretical state of art.
8. Analytical and Monte Carlo simulations.

TOMSJ seeks high-quality research articles and review papers for this special issue. Manuscripts are welcome when written according to the style of the *TOMSJ* journal, which is available at the website on http://www.benthamopen.com/TOTHERJ/home. The papers will be initially screened by the special issue editors and then send out for single blind peer review in accordance with the procedures of *TOMSJ*. Authors are encouraged to submit high-quality publications that have neither appeared in nor are under consideration by other journals. Manuscripts may be submitted by E-mail at soulayman.soulayman@hiast.edu.sy or alternatively at totherj@benthamopen.org.

Important Dates:

The special issue is scheduled for publication on 1st December 2015

- Submission of manuscripts: 1st May 2015
- Revised manuscripts due: 1st October 2015
- Acceptance/rejection notification: 1st November 2015