

Special Issue

High Temperature Statistical Thermodynamics of Molecules in Gases and Plasmas

Message from the Guest Editor

The present Issue is devoted to fundamentals of high temperature statistical thermodynamics of small molecules and applications of partition functions and thermodynamic properties. High temperatures are understood broadly ranging from 1000K to tens of thousands of Kelvins.

Applications of high temperature statistical thermodynamics are scattered over several areas of research – the general chemical physics/physical chemistry, combustion (temperatures of thousands of Kelvins are of interest), plasma science (whole range of temperatures mentioned above can be of interest), hypersonic flows (also shock waves and aerothermodynamics; temperatures of tens of thousands of Kelvins are often of interest) and equations of state.

In plasmas and flows the non-equilibrium conditions often arise and translations, rotations and vibrations of molecules are characterized by different temperatures. The kinetic theory is then needed to connect external conditions with thermodynamical quantities.

The main scope is theoretical studies of various gas and plasma systems but experimental studies are also welcomed.

Guest Editor

Prof. Dr. Marcin Buchowiecki

Institute of Physics, University of Szczecin, Wielkopolska 15, 70-451 Szczecin, Poland

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Entropy
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
entropy@mdpi.com

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Prof. Dr. Kevin H. Knuth

Department of Physics, University at Albany, 1400 Washington Avenue,
Albany, NY 12222, USA

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