

Keep-in-Touch meeting (June 26, 2025)

Some considerations about thermodynamics, partition functions, and detailed balancing in the high temperature limit. (and an update on ESTHER testing)

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Significant deficiencies on the available thermodynamic databases available to the community still exist in the high-temperature range. While these bear no impact for modeling applications at room temperature or even moderate temperature plasma sources (arjets, icp's, etc...) these are nevertheless critical for the modeling of very high temperature molecular plasmas such as the ones encountered during extremely fast atmospheric entries at superorbital velocities. We will examine the case-study of the partition function for N_2 , and will discuss the roadmap towards the update of partition functions in the 10,000-100,000K range. We will conclude the talk with a short discussion on the current status of the qualification tests for ESTHER.