

Abstract Submitted
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Investigation of Isentropic Coefficient in Non-LTE Hydrogen Thermal Plasma ROHIT SHARMA, Satyam Institute of Engineering & Technology, Amritsar, Punjab, India-143507, KULDIP SINGH, Guru Nanak Dev University Amritsar, Amritsar, Punjab, India-143005 — The isentropic coefficient in non-LTE hydrogen plasma has been examined in the temperature range from 6000K to 60000K at pressures of 1, 10 and 100 atm for different values of non-equilibrium parameters θ by taking into account the influence of electronically excited states. The two cases of hydrogen thermal plasma have been considered (i) the ground state (GS), in which all the plasma species are assumed to be in the ground state and (ii) the excited state (ES), in which all the species are distributed in the various possible excited states. It has been observed that isentropic coefficient for hydrogen thermal plasma remains almost constant at 1.16 when degree of ionization varies from 0.1 to 0.8 with some dependence on the non-equilibrium parameter θ . Further, it is inferred that electronically excited states play a significant role at high pressure in affecting the isentropic coefficient of hydrogen thermal plasma.

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