

Poster paper

ATOMIC DATA AND STARK BROADENING PARAMETERS FOR Si VI ION

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Energy levels, electric dipole transition probabilities and oscillator strength for five times ionized silicon have been calculated in intermediate coupling. The present calculations were carried out with the general purpose atomic-structure program SUPERSTRUCTURE. The relativistic corrections to the non-relativistic Hamiltonian are taken into account through the Breit-Pauli approximation. We have also introduced a semi-empirical correction (TEC) for the calculation of the energy-levels. These atomic data are used to provide semiclassical electron-, proton- and ionized helium- impact line widths and shifts for 15 Si VI multiplet.

Stark broadening widths and shifts are calculated for a perturber density of 10^{17} cm⁻³ and for temperatures from 50000 to 800000 K. Such temperatures are of interest for the modelling and analysis of x-ray spectra, such as the spectra obtained by Chandra, modelling of some hot star atmospheres (e.g. PG 1195), subphotospheric layers, soft x-ray lasers and laser produced plasmas. Higher temperatures are of interest for fusion plasma as well as for stellar interiors.

Poster paper

OPTICAL SEARCH FOR SUPERNOVA REMNANTS IN M81 AND M82

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M81 and M82 form a most conspicuous physical pair among the nearby galaxies. M82 is a starburst galaxy – its starburst activity is most likely a result of the encounter with M81. As a consequence of the enhanced star formation there is a number of compact radio supernova remnant (SNR) candidates discovered in M82, and some preliminary results indicate the existence of a number of optical candidates in M81. Our aim was to conduct an optical search at NAO Rozhen, Bulgaria, in the narrow [S II] and H α filters to confirm the SNR status of the existing objects and possibly do discover new SNR candidates.