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Atomic data and Stark broadening parameters for Si VI ion

R. Hamdi[1], N. Ben Nessib[1], M. S. Dimitrijević[2,3] and S. Sahal-Bréchot[4]

[1] Groupe de Recherche en Physique Atomique et Astrophysique, Institut National des Sciences Appliquées et de Technologie, Centre Urbain Nord B. P. No. 676, 1080 Tunis Cedex, Tunisia.
[2] Astronomical observatory, Volgina 7, 11160 Belgrade 74, Serbia.
[3] Isaac Newton Institute of Chilie, Yugoslavia Branch.
[4] Laboratoire d'Étude du Rayonnement et de la Matière en Astrophysique, UMR CNRS 8112, Observatoire de Paris-Meudon, 92195 Meudon, France.

Atomic data

- Atomic data are calculated using SUPERSTRUCTURE code (Eissner et al. 1974) as modified by Nussbaumer & Storey (1978).
- Two atomic models are adopted

9-configurations model : $2s^22p^5$, $2s2p^6$, $2s^22p^4$ 3l, $2s^22p^4$ 4l ($l \leq n-1$).

26-configurations model : $2s^22p^5$, $2s2p^6$, $2s^22p^4$ 3l, $2s^22p^4$ 4l, $2s^22p^4$ 5l, $2s^22p^4$ 6l, $2s2p^5$ 3l, $2p^6$ 3l ($l \leq n-1$).

- The relativistic corrections are included by using the Breit-Pauli Hamiltonian
- We also use the so-called term energy corrections (TEC) introduced by Zeippen et al. (1977)
- Our transition probabilities are compared with NIST values and multiconfiguration Hartree-Fock (MCHF) results of Froese-Fischer & Tachiev (2004).
- For weighted oscillator strengths, comparison is made with Coutinho & Trigueiros (1999) using multiconfiguration Hartree-Fock relativistic (HFR) approach.

Stark broadening parameters

- Energy levels and oscillator strengths ⇒ Stark broadening parameters due to electron- and proton-impact for 5 Si VI multiplets.
- Semiclassical perturbation method (Sahal-Bréchot 1969a, 1969b).
- Electron density of 10^{17} cm^{-3}. Temperatures from 100000 up to 800000 K
- Comparison is made with Dimitrijević (1993) using the modified semiempirical formula (Dimitrijević & Konjević 1980).