

# Sc III Spectral Properties of Astrophysical Interest

D. K. Nandy, Yashpal Singh, B. K. Sahoo, Chengbin Li

(Submitted on 27 Jul 2011 (v1), last revised 1 Sep 2011 (this version, v2))

Transition properties such as oscillator strengths, transition rates, branching ratios and lifetimes of many low-lying states in the doubly ionized scandium (Sc III) are reported. A relativistic method in the coupled-cluster framework has been employed to incorporate the electron correlation effects due to the Coulomb interaction to all orders by considering all possible singly and doubly excited electronic configurations conjointly with the leading order triply excited configurations in a perturbative approach. Present results are compared with the previously reported results for the transition lines of astrophysical interest. In addition, some of the transition properties and lifetimes of few low-lying states are given for the first time. Role of the correlation effects in the evaluation of the transition strengths are described concisely.

Comments: 4 tables, 11 pages

Subjects: **Solar and Stellar Astrophysics (astro-ph.SR)**; Atomic Physics (physics.atom-ph); Chemical Physics (physics.chem-ph)

Cite as: **arXiv:1107.5453 [astro-ph.SR]**  
(or **arXiv:1107.5453v2 [astro-ph.SR]** for this version)

## Submission history

From: Bijaya Sahoo Dr. [[view email](#)]

[v1] Wed, 27 Jul 2011 12:29:41 GMT (17kb)

[v2] Thu, 1 Sep 2011 08:57:28 GMT (18kb)

*[Which authors of this paper are endorsers?](#)*

## Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

## Current browse contents:

[astro-ph.SR](#)

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

## Change to browse by:

[astro-ph](#)

[physics](#)

[physics.atom-ph](#)

[physics.chem-ph](#)

## References & Citations:

- [INSPIRE HEP](#)  
([refers to](#) | [cited by](#))
- [NASA ADS](#)

## Bookmark ([what is this?](#))



Science  
WISE