

HEAVY IONS FROM IMPULSIVE SEP EVENTS AND CONSTRAINTS ON THE PLASMA TEMPERATURE IN THE ACCELERATION SITE

Yu. Kartavykh (1), V. Ostryakov (2), D. Ruffolo (3), E. Moebius (4), and
M. Popecki (4)

(1) A. F. Ioffe Physical-Technical Institute, Russia,

(2) St. Petersburg State Technical University, Russia,

(3) Chulalongkorn University, Thailand,

(4) University of New Hampshire, USA.

Julia.jarc@pop.ioffe.rssi.ru / FAX: +7-812-2471017

We compare the mean charge states of heavy ions (O, Ne, Mg, Si and Fe) as observed with ACE/SEPICA during several solar energetic particle events in 1998 with model calculations. A model of stochastic acceleration that includes a self-consistent treatment of the charge states of the affected ions is applied to estimate the plasma temperature in the acceleration site for 8 impulsive events. This model takes into account ionization due to collisions with electrons and heavy particles (protons and He) as well as recombination due to collisions with electrons. In general the temperatures obtained for Ne, Mg and Fe ions appear higher than those for O and Si. We compare our results with the corresponding ionization temperatures for gradual events observed in previous solar cycles and in 1997-1998.