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Project Review

Concept of Research Network on Non-Equilibrium and Extreme State Plasma

- New Research System of Plasma Physical Science -

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Fast electron (55 - 65 eV) distribution in a multi-cusp arc-discharge H^- source obtained by 3D Monte-Carlo electron transport simulation with Boltzmann equation (KEIO-MARC code; Numerical Code Kinetic Electron Transport in H^- Ion Sources by Multi-cusp Arc-discharge). After being transported upwards due to $\text{grad-}B$ drift, fast electrons are relaxed to low energy thermal electrons by Coulomb and inelastic collisions. Analysis of electron energy relaxation process in 3D real/velocity space (3D3V) is important for efficient and uniform H^- production in H^- ion sources. (Takanori SHIBATA *et al.*, Plasma and Fusion Research Vol.9, 1401011 (2014) <http://www.jspf.or.jp/PFR/>)

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