

2nd Asia-Pacific Conference on Plasma Physics, 12-17, 11.2018, Kanazawa, Japan



X-ray diagnosis on Space Plasma, a Laboratory of Extreme Condition.

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Space plasma is not a simple copy of laboratory plasma. It is under extreme conditions which are not utilized in Laboratory. This talk focuses on the X-ray diagnosis of space plasma, including those of SNR, young stars and Our Galactic Center. The topics are to reveal the physical conditions and obtain key parameters in non-equilibrium ionization (NEI) plasma. The NEI plasma is transient plasma which is not uncommon in laboratories. However the transient time is too short for the detection of the NEI plasma conditions. Space plasma has very low density, and hence transient time is largely expanded to be observable. One subject a shock heated plasma in supernovae remnant (SNR). Another subject is hot plasma heated by Magnetic activity, which is big flares from young stars. The final subject is origin of large scale hot plasma in our Galactic center.