



Hasegawa Lab

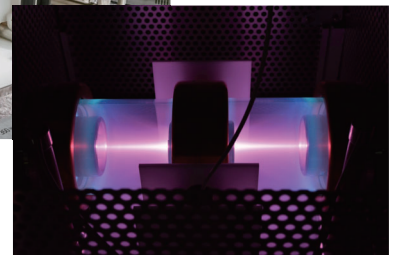
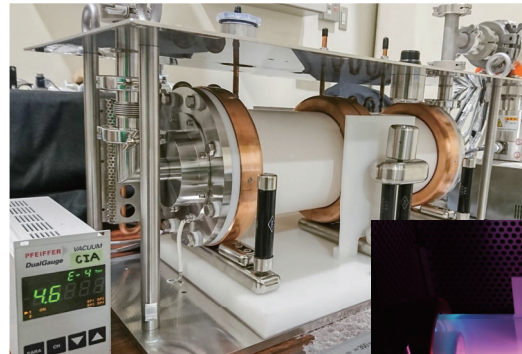
Development of Quantum Beam Technologies

Laboratory for Zero-Carbon Energy

<http://www.zc.iir.titech.ac.jp/~jhasegawa/>

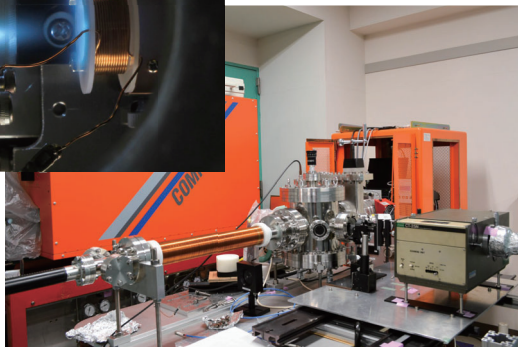
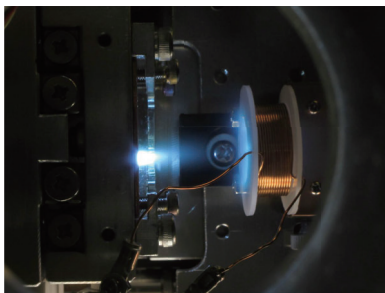
- Discharge-type Fusion Neutron Sources
- Laser Ablation High-Brightness Ion Sources
- Cluster Ion Sources for Accelerators

We promote fundamental studies on generation and control of various quantum beams such as ions, clusters, photons, and neutrons, and also application studies to solve various issues on energy problems and society safe and secure using quantum beam technologies. We are developing quantum beam sources for heavy ion inertial fusion drivers, high-energy cluster accelerations, non-destructive inspections, and so on, while clarifying complicated behavior of plasma and quantum beam by experiments and numerical simulations.



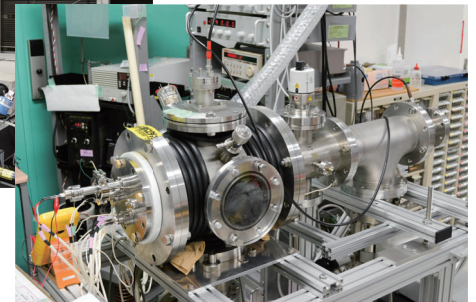
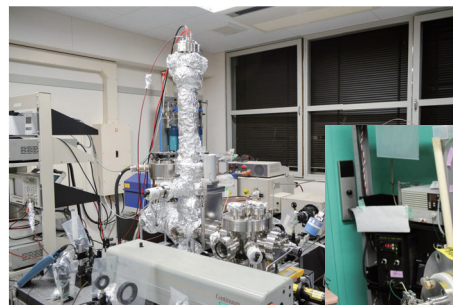
Inertial Electrostatic Confinement Fusion Neutron Source

- Portable, low-cost neutron sources for non-destructive inspection, detection of special nuclear materials, etc..



High-Brightness Laser Ablation Ion Source

- High quality ion beam extracted from laser ablation plasma.
- Acceleration of laser ablation plasma by magnetic nozzle.
- High-brightness beam supply for heavy ion fusion driver accelerators.



Cluster Ion Sources for High Energy Accelerators

- High-flux cluster ion sources for induction accelerators to generate GeV cluster beams.
- Fullerene ion sources using electron beam ionization.
- Metal cluster generation using laser ablation.