## **«Materials Science for Fusion Energy**»



High energy helium (He) and neutrons are generated in plasma by fusion reactions of deuterium (D) and tritium (T).

Due to small size, tritium is easily dissolved in a metal lattice and accumulated in defects in metals. Tritium permeation through materials at high temperature poses risk of tritium release to the environment. Materials facing to plasma are damaged by irradiation of neutrons and plasma.



## **Research subjects**

- Development of plasma-facing materials and evaluation of neutron irradiation effects
- Safe confinement of tritium in fusion system
- Tritium recovery from solid, liquid and gaseous wastes, and chemical form conversion to T<sub>2</sub> and DT gases to reuse as fuel

Plasma exposure tests of

neutron-irradiated materials



Current student after conference presentation

## Start on July 1st, 2024

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Tritium handling by controlling quantum states of molecules

