

9th Summer School

Plasmas in super-intense laser fiels



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Materials for fusion

Lectures 1 and 2

Introduction to Reactor Components, Radiation Fluxes, and Materials under Irradiation

- *Reactor Components: Chamber, Blanket, and Shielding*
- Chamber Protection ideas
- Intensities of Neutron, Radiation and Charged Particles
- Laser Fusion vs. Magnetic Fusion emissions
- Direct vs. Indirect Drive emissions
- Radiation-Matter interaction: Atomistic effects
- Neutron irradiation: defects and activation
- Damage by charged particles vs. Neutron & Gammas
- Defect production mechanisms and magnitudes
- Linking Micro and Macroscopic Properties change
- Radiation-matter interaction: Thermo-mechanical effects
- Damage in First Wall and Blanket.
- Activation of Materials

Lecture 3

Facilities for Irradiation of Fusion Materials

- *Neutron systems: Fission-Accelerators*
- Neutron Systems: IFMIF-DONES
- Charged Particles sources
- Charge Particle as mimic neutron irradiator