

Abstract

Nuclear fusion is the reaction that combines different atomic nuclei to form a heavier nucleus, during which the mass is not conserved due to the difference in binding energy. We will discuss the physics knowledge behind the nuclear fusion by introducing two major branches of fusion energy research, Magnetic confinement fusion and Inertial confinement fusion.

Outline

1. Introduction of Fusion
 - 1.1 Basics of Fusion
 - 1.2 Feasibility of Fusion
2. Confinement Concepts
 - 2.1 Magnetic Confinement
 - 2.2 Tokamaks
 - 2.3 Stellarator
 - 2.4 Spherical Torus
 - 2.5 Reversed-Field Pinch
3. Fusion Reactors
4. Inertial confinement fusion
 - 4.1 Introduction
 - 4.2 Direct and indirect drive
 - 4.3 Laser interact with matter
5. interaction of laser and matter
 - 5.1 inverse bremsstrahlung