

## **Dependence of tritium breeding ability on mixing ratio of neutron multiplier to breeding material**

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Fusion research is changing to a reactor development phase. Several blanket materials: molten salt Flibe [1],  $\text{Li}_4\text{SiO}_4$  [2], LiPb [3], etc., are studied for magnetic fusion reactors. A blanket is placed at the limited space between superconducting magnets and fusion plasma for tritium breeding. Blanket design with a tritium breeding ratio beyond 1 is the top priority.

Blanket systems for laser fusion reactors have not been designed in detail yet and must be designed using different concepts from magnetic fusion reactors because a laser fusion reactor can use a larger blanket space than a magnetic fusion reactor. [4, 5] High tritium breeding ratio would be achieved by laser fusion reactors.

Preliminary research of a laser fusion blanket is conducted. This study focuses on the tritium breeding function of a blanket. A neutron multiplier: Be and a breeding material: LiPb are considered as blanket materials. The Particle and Heavy Ion Transport code System (PHITS) is used to calculate a tritium breeding ratio. [6] The inner and outer radius of a blanket are assumed to be 1 m and 2 m, respectively. Then the mixing ratio of Be to LiPb is systematically changed. The tritium breeding ratio beyond 1.5 is achieved in the laser fusion blanket.

### References

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