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Concrete structure and shielding in the IFMIF-DONES main building

Tuesday 3 June 2025 16:00 (2 hours)

IFMIF-DONES is devoted to the irradiation of fusion materials, based on a high energy linear accelerator and a lithium-deuteron stripping reaction, creating the high intensity neutron source which simulates the damage on the 1st wall of the future fusion reactors.
The core of the facility are the Accelerator, Lithium and Test Systems hosted inside IFMIF-DONES Facility, in the so-called Main Building (MB). The detailed design of this building was initiated first during the IFMIF-EVEDA activities in the framework of the Broader Approach (EU-Japan Bilateral Agreement) and pursued within EUROfusion for the development of an Early Neutron Source (WPENS). The design has evolved in which the main areas in terms of neutronics shielding are the Accelerator Vault and the Test Cell, where the nuclear reaction takes place and the materials are irradiated.
Additional rooms like the Access Cell or the radwaste treatment area, are key in terms of shielding.
In this work, it is presented the status of the integration into the design of the MB structure of the safety requirements from the definition of the radiation maps, neutronics studies and heavy concrete vs ordinary concrete capabilities.

Footnotes

Paper preparation format

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Region represented

Europe

Funding Agency

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