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## **Nuclear Instrumentation for the European TBM**

Since many years the EU is conducting a dedicated R&D effort to provide the basis for the design of tests and experiments to be performed with the so called Test Blanket Modules (TBM) in the fusion reactor ITER (The Way) as well as for further development towards fusion power plants.

The neutron flux inside the TBM is certainly one of the most important parameters to measure since it determines tritium production, heat deposition, material damage and activation, dose rates behind the blanket, and others. The measurement of neutron fluxes in selected positions in the TBM is therefore indispensable, however, fully qualified neutronics instrumentation for the extremely harsh environment in the ITER TBMs is not yet available. A considerable part of our current activity is devoted to the development and testing of suitable measurement methods and detectors for neutron flux, tritium production rate and others in the TBM. Particular R&D focus is on a neutron activation system, silicon carbide detectors, and self-powered neutron detectors. The current status of the work will be presented.