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## From nuclear data to nuclear energy applications

An overview is given of the current nuclear data libraries which are used for nuclear technology, in particular nuclear energy. These nuclear data libraries are filled with fundamental nuclear reaction and nuclear structure data, coming from a mixture of measurements and nuclear model calculations, and are used in Monte Carlo or deterministic application codes for the analysis of nuclear reactors and other devices.

A special focus will be given on nuclear data development projects and the modernization of various data dissemination methods at the IAEA, which allows users to make more automated use of data, among others for AI/ML applications. Important nuclear databases which will be mentioned are EXFOR, ENSDF and ENDF. Finally the use of the TALYS nuclear reaction model code for nuclear data generation will be outlined. The general nuclear reaction mechanisms described are the optical model, direct reactions, compound nucleus model, pre-equilibrium reactions and fission. The most important nuclear structure models are those for masses, discrete levels, level densities, photon strength functions and fission barriers.

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