

1.4: Fission and Fusion

Fission of radioactive elements was already well established in the early part of the century, and activation by neutrons, to generate more unstable isotopes, was investigated before fission of natural isotopes was seen. The inverse process, fusion, was understood somewhat later, and Niels Bohr developed a model describing the nucleus as a fluid drop. This model - the collective model - was further developed by his son Aage Bohr and Ben Mottelson. A very different model of the nucleus, the shell model, was designed by Maria Goeppert-Mayer and Hans Jensen in 1952, concentrating on individual nucleons. The dichotomy between a description as individual particles and as a collective whole characterises much of “low-energy” nuclear physics.

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