

# Nuclear structure: from mean-field to beyond mean-field calculations

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Nuclear structure calculations aim to describe elementary properties of atomic nuclei. Solving the Schrödinger equation for such a system is, however, computationally expensive, which prevents us from performing exact calculations. Several assumptions can be made in order to make numerical computations tractable. I will discuss the self-consistent mean-field model that has become a cornerstone in the description of nuclei. Within this approach, one is able to compute various observables with a reasonable precision. Nonetheless, it is known that this precision could be further improved and that the mean-field approximation lacks the ability to compute certain observables. Going beyond the mean-field is not straightforward since the currently existing effective interactions can not be used without ambiguity in such models. In the remainder of the talk I will present our attempt to build a new interaction suited for both mean-field and beyond mean-field calculations.