One of the most important problems of modern theoretical nuclear physics is to accurately determine the structure of atomic nuclei. To obtain results that are in agreement with experimental data, one needs to solve the nuclear many-body problem with high enough precision. Ab initio methods address this problem by trying to solve the emergent Schrödinger equation for all nucleons with a realistic interaction. Until recently, they were applicable only to light nuclei because of the high computational demands. In this work, we briefly present the theory behind the symmetry-adapted no-core shell model, which allows for truncation of the model space based on innate symmetry of nuclei that leads to reduction of the Hamiltonian matrix dimensions, while the convergence of the full space is conserved. We explore its predictive power by studying beta decays of various nuclei and discuss possible applications of the symmetry-adapted no-core shell model for the study of physics beyond the Standard Model.