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Gamow Shell Model description of weakly bound and resonant nuclei NICOLAS MICHEL, Oak Ridge National Laboratory

Recently, the shell model in the complex k-plane (the so-called Gamow Shell Model) has been formulated using a complex Berggren ensemble representing bound single-particle states, single-particle resonances, and non-resonant continuum states. The single-particle basis used is that of the Hartree-Fock potential generated self-consistently by the finite-range residual interaction. In this framework, we shall discuss binding energies and energy spectra of neutron-rich helium and lithium isotopes, as well as spectroscopic factors and spin-orbit splitting in the helium region. It is shown that correlations due to scattering components cannot be neglected. In collaboration with Witek Nazarewicz, HRIBF Scientific Director and Marek Ploszajczak, CEA researcher.