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Proton drip line nuclei in the Relativistic Hartree-Bogoliubov model

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The Relativistic Hartree Bogoliubov (RHB) theory is applied to the description of ground-state properties of proton-rich odd-Z nuclei. The model predicts the location of the proton drip-line, the ground-state quadrupole deformations and one-proton separation energies at and beyond the drip-line, the deformed single-particle orbitals occupied by the odd valence proton, and the corresponding spectroscopic factors. The results of fully self-consistent RHB calculations are compared with experimental data on deformed and transitional proton emitters and the predictions of various mass models.