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Structure of Three-Body Hypernuclei[1] FABIAN HILDENBRAND, HANS-WERNER HAMMER, TU Darmstadt — We calculate the structure of three-body hypernuclei with $S = -1$ using pionless effective field theory at leading order in the isospin $I = 0$ and $I = 1$ sectors. In both sectors, three-body hypernuclei arise naturally from the Efimov effect and a three-body parameter is required at leading order. We apply our theory to the hypertriton and the hypothetical Λnn bound state and calculate the corresponding scaling factors. Moreover, we discuss constraints on the existence of the Λnn bound state. In particular, we elucidate universal correlations between different observables and provide explicit calculations of wave functions and matter radii. In addition, we discuss the lifetime and branching ratios of the hypertriton in an effective theory with a fundamental deuteron and discuss the impact of the binding energy in the light of recent experimental results.

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