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Effective field theory for general baryon-number-violating nucleon decays

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Baryon number violation (BNV) is a requisite to explain the overwhelming dominance of matter over anti-matter in our Universe. Yet it has never been observed after decades of heroic searches for BNV nucleon decays. In this circumstance, it is important that all possible decays, exotic as well as conventional, should be attempted. In this talk, I will present our recent work about new BNV interactions among the nucleons, leptons, and mesons, with or without new light particles, in the framework of effective field theory. We construct the leading-order chiral Lagrangian for these general |Delta B|=1 interactions. In particular, we develop the first consistent chiral framework for nucleon decays involving vector mesons.

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