“Towards a systematic approach to nuclear physics”

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The nature of forces acting between nucleons is one of the basic problems in nuclear physics. Only if these forces are known one can understand various properties of nuclei. I explain how to apply chiral effective field theory to study the dynamics of few-nucleon systems in a systematic and controlled way. This method relies on the low-momentum expansion and allows to derive nuclear forces and current operators from the most general effective Lagrangian for nucleon and pion fields and external sources in harmony with (approximate) chiral symmetry of Quantum Chromodynamics, the underlying theory of the strong interactions. I present some results for two-, three- and four- and six-nucleon systems based upon the chiral forces. I also consider related topics such as isospin violation and chiral extrapolation of few--nucleon observables.

REFRESHMENTS AT 10:50 am
For further information call Frank Lee at 202-994-6485
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