

Atomic Nuclei at Low Resolution

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Room 118 Nieuwland Science Hall

Refreshments @ 3:30 in 202 NSH

For digital televisions and cameras, higher resolution is considered better. Progress in particle physics usually requires higher resolution (shorter wavelengths) using higher-energy accelerators. But for many-body problems, such as the microscopic description of nuclei, lowering the resolution can be a big advantage. Evolving Hamiltonians to low resolution involves only basic principles of quantum mechanics, but with less familiar features such as nonlocality and many-body forces, which can run counter to intuition about potentials and wave-function correlations. I will illustrate the machinery and consequences of lowering the resolution and outline the benefits for major nuclear theory efforts such as NUCLEI (“NUclear Computational Low-Energy Initiative”).