

## Relativistic density functional theory and the origin of the elements

*Sunday, 8 September 2024 11:35 (25 minutes)*

The relativistic or covariant density functional theory (CDFT), implemented with self-consistency and taking into account various correlations by spontaneously broken symmetries, provides an excellent description for the ground-state properties. New physics wonder may result from the strong coupling between theory and experiment perspectives. In this talk, the predictive power of PC-PK1 is demonstrated, physics around the neutron drip line and  $N=Z$  nuclei are discussed, status of the DRHBc mass table collaboration is introduced as well as the effects of the continuum and deformation and the related topics. Based on the DRHBc theory, the effects of the deformation effect and the continuum effect on the nuclear energy level density, gamma intensity function, neutron capture rate and beta decay lifetime are discussed.

**Primary author:** MENG, Jie (PKU)

**Presenter:** MENG, Jie (PKU)

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