

**FAKULTÄT für PHYSIK  
LUDWIG-MAXIMILIANS-UNIVERSITÄT  
MÜNCHEN/GARCHING**

**PHYSIK-DEPARTMENT  
TECHNISCHE UNIVERSITÄT MÜNCHEN  
MÜNCHEN/GARCHING**

## **MLL-KOLLOQUIUM**

**Donnerstag, 02.05.2019, 16<sup>15</sup> Uhr**

Hörsaal der LMU in Garching, Am Coulombwall 1  
Treffen zum gemeinsamen Kaffee 16 Uhr

**Dr. Shihang Shen**

**(Physics Department, University of Milano, Italy)**

### **Relativistic Brueckner Approach to the Structure of Finite Nuclei**

Ab initio calculations of the structure of nuclei are of fundamental interest in nuclear physics, and in the past considerable progress has been made with non-relativistic many-body methods. On the other side, in the study of nuclear matter through relativistic Dirac-Brueckner-Hartree-Fock (RBHF) theory, relativistic effects play an important role. Due to its numerical complexity, however, the extension of RBHF to the study of finite nuclear systems is very difficult. I will discuss recent efforts in relativistic ab initio calculations with RBHF for the structure of finite nuclei and I will show how such calculations can guide us to construct better nuclear density functionals, which in turn provide a very good description of nuclei all over the periodic table with much lower computational costs as compared to ab initio calculations.

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