

# Department of Physics Colloquium

**Speaker: Anatoli Afanasjev, Ph.D.**

Professor, Theoretical Low-Energy Nuclear Physics (Computational)

Department of Physics and Astronomy

Mississippi State University

## **“Recent Progress in the Study of the Atomic Nuclei within Covariant Density Functional Theory: From Simple Systems to the Extremes of Nuclear Landscape”**

Open to the public, free of charge

**Monday, April 15, 2024 – 4 p.m. – 1110 Rood Hall**

**Refreshments:** 3:30-3:50 p.m., Bradley Commons, 2202 Everett Tower

**Abstract:** The atomic nucleus is described as a system of nucleons which interact via the exchange of mesons in covariant density functional theory (CDFT). This is the state-of-the-art relativistic version of density functional theory. I will start my presentation from basic features of the CDFT and the illustration of the applicability of this theory to different physical phenomena. Then, I will consider the physics of charge radii which is in the focus of current experimental and theoretical efforts. Finally, new physical mechanisms at the boundaries of the nuclear landscape triggered by either extreme charge of nucleus or its fast rotation will be discussed.

**Parking:** Metered parking is available in Parking Structure #2, near Miller Auditorium.

**More information:** (269) 387-4941 [Department of Physics email](#) [Campus map](#)

