

**Tuesday**

**Nov. 15<sup>th</sup>**

**At 3:45pm**



## **Shine A Light! When Matter Shatters**

### **Abstract:**

Cosmic forms of matter can be created in the laboratory for short instances in time by colliding heavy nuclei at relativistic energies. One challenge of such studies is to search for exotic phases of strongly interacting matter by isolating unambiguous signals. At very high energies (RHIC, LHC) matter is created as it has been realized in the cosmos a few micro seconds after the Big Bang. At lower beam energies (GSI, FAIR) the matter formed resembles properties as they may exist in the interior of compact stellar objects. The physics to understand properties of matter under extreme conditions touches most fundamental aspects of nature, namely the formation of matter out of nearly mass-less elementary particles. Virtual photons, the generalized form of electromagnetic radiation, materialize after short time by formation of a pair of charged leptons, e.g. an electron and a positron. Throughout the course of a heavy-ion collision such photons offer the unique opportunity to directly monitor "Roentgen-images" (in-medium electromagnetic spectral functions) and to measure "Planck-like-spectra" (temperature of the emitting source) of strongly interacting matter. Key results on in-medium properties of hadrons obtained by the High Acceptance DiElectron Spectrometer and the perspectives for future experiments which target the search for the onset of deconfinement using dileptons will be discussed.



**TEXAS A&M**  
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## **CYCLOTRON COLLOQUIUM**

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**Tetyana  
Galatyuk**

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Room 228

Refreshments will be  
served at 3:30pm