講演者: Mr. Tyler Drye  
（Department of Physics,  
University of Maryland College Park）

題目:『Towards Bulk 49K Superconductivity  
in the Intermetallic CaFe$_2$As$_2$』

要旨: The highest achievable superconducting critical temperature (Tc) in intermetallic iron-pnictide superconductors (specifically, the 122 family) was heald to be 39K when K is substituted for Ba in BaFe$_2$As$_2$. Our group was among the first to report traces of superconductivity in the 40-50K range when rare earth elements are doped for Ca in CaFe$_2$As$_2$. Unfortunately, these materials display a drastically low shielding volume fraction and correspondingly low critical current densities. Recent studies aimed at increasing this volume fraction, including high pressure synthesis and unusual doping schemes, have met with varying levels of success. This talk will detail these efforts and the outlook for bulk superconductivity in this system.

世話人: 柳澤達也  
（北海道大学大学院理学研究院物理部門）Tel. 011-706-4422