The strength of the young geomagnetic field is of fundamental importance for understanding the evolution of Earth’s deep interior, surface environment and atmosphere. But thermochemical effects of low grade metamorphism on Earth’s oldest rocks bar traditional approaches to paleointensity determination. I will discuss a new method, utilizing a CO2 laser and high resolution SQUID magnetometer, that allows us to obtain paleointensity data from single silicate crystals which host magnetite inclusions. These data provide the oldest records of the geodynamo and evidence for a strong magnetosphere capable of shielding Earth from the solar wind. The shielding potential of Earth’s future magnetic field is a current concern, given the rapid decay of the dipole over the last 150 years. I will discuss the early and future shielding environments, and present a new approach to better understand the recent dipole collapse.

Friday, October 20th 2006, McCook Auditorium, 3:00 pm, Refreshments 2:45 pm