MONTANA STATE UNIVERSITY | College of LETTERS & SCIENCE

Physics Colloquium

Friday, October 28th
4:10 – 5:00 PM
Barnard Hall 103

Quantifying the Magnetic Origins of Coronal Heating and Dynamics

Philip Judge, Holly Gilbert, and the HAO solar group
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Abstract:

Current understanding of the solar corona is limited by our inability to measure evolving magnetic fields above the solar surface. I will summarize research over the past 2 years at HAO which aims to measure magnetic fields in detail across the 9 pressure scale heights of the solar chromosphere, into the base of the corona. With Ball Aerospace, HAO will deliver a proposal to NASA for the **"Chromospheric Magnetism Explorer (CMEx) Mission",** in response to NASA's call for small explorers. We have demonstrated that the challenges are optimally met, somewhat surprisingly, through a combination of near UV spectral lines of Mg II, and lines of Fe II and Fe I mostly within the 4s-4p transition array. The lines form across the entire chromosphere and extend into the lower transition region. Based upon the successful suborbital space measurements of magnetic fields with the CLASP2 instrument, we show through three major science questions, that a modest space-borne telescope will reveal for the first time conditions at the base of the corona which drive coronal heating, dynamics with consequences for geospace and ground technology.

Host: Charles Kankelborg

**** Refreshments served in the Barnard second floor atrium at 3:00 P.M.***