



## HAO Colloquium Series

(Refreshments served)

- Speaker:** Boon Chye Low, NCAR/HAO
- Time:** 3:00–4:00 pm
- Date:** Tuesday, July 16, 2013
- Location:** CG1-2139 Captain Mary
- Title:** The hydromagnetic nature of the Sun’s magnetic fields

### ***Abstract:***

The phenomenon of the Sun reversing its global magnetic polarity with a periodicity of approximately eleven years is briefly reviewed to comment on the current hydromagnetic understanding of the dynamo in the solar interior and the transport of the generated magnetic flux for mixing into the electrically highly-conducting solar atmosphere. Space and ground-based observations today describe the solar atmosphere with truly amazing ranges of photon/particle energies and unprecedented resolutions in space and time. The review will concentrate on the million-degree hot, tenuous corona, the outer atmosphere that expands into the solar wind flowing supersonically past the Earth to beyond Pluto. The approximate conservation of magnetic helicity and a natural tendency to form thin current sheets are basic to the magnetic heating of the corona and its long-lived magnetic structures that intermittently flare and blow off as CMEs. This view of how the global magnetic field takes its own time to reverse polarity in the voluminous corona is interesting physics, with the intriguing implication that organized magnetic systems do make tortuous ways from the solar interior into the solar wind.