



HAO Colloquium Series

(Refreshments served)

Speaker: Jeff Linsky, CU/JILA

Time: 1:30–2:30 pm

Date: Wednesday, February 27, 2013

Location: CG1-1210 South Auditorium

Title: Connecting solar and stellar chromospheres, the interstellar medium, exoplanet atmospheres, and habitability

Abstract:

We now know that planets around other stars are very common and that a few planets with masses similar to or somewhat larger than the Earth have already been discovered in the habitable zones around their host stars. A major question is whether the chemical compositions of the atmospheres of such planets are conducive to life forms. The UV and EUV radiation and wind plasma from the host star play critical roles in determining the molecular and atomic constituents of such atmospheres through photodissociation, photoionization, and charge-exchange reactions.

I will summarize various techniques for reconstructing or estimating the stellar Lyman-alpha flux, which dominates the UV spectra of stars cooler than the Sun. I will also discuss how to estimate the unobservable EUV flux from host stars and stellar mass-loss rates. This seminar will tie together what we know about UV spectra of the Sun and cooler stars and the interstellar medium that prevents detection of most of the Lyman-alpha flux and all of the EUV flux.

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