TiH IN SUBDWARFS

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Metal hydrides are prominent in the near infrared spectra of cool stars, particularly M-type dwarfs, and in substellar objects such as brown dwarfs. Brown dwarfs are cool objects that have surface temperatures intermediate between those of the coolest stars (M-type) and those of giant planets such as Jupiter. The L-type class of brown dwarfs is characterized by the presence of metal hydrides such as CrH and FeH, and the absence of metal oxides such as TiO and VO. Subdwarfs are peculiar objects that have very low abundances of metals and high abundances of metal hydrides as compared to normal dwarfs. We have recently started a project on the computation of molecular opacities of metal hydrides that finds application in the simulation of spectral energy distributions of M and L dwarfs and subdwarfs. Our general approach is to combine laboratory measurements with ab initio calculations. Our work on TiH will be presented and the possible detection of TiH in subdwarfs (as suggested by Burgasser) will be discussed.