METAL HYDRIDES IN ASTRONOMY

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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 stars 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. We have recently started a project on the computation of molecular opacities of metal hydrides. Our general approach is to combine new laboratory measurements with theoretical calculations. Work on CrH, FeH and TiH will be presented.