

LiHe SPECTRA FROM BROWN DWARFS TO HELIUM CLUSTERS

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The detection of Li I lines is the most decisive spectral indicator of substellarity for young brown dwarfs with masses below about 0.06 solar mass [1]. Detailed knowledge of the line profiles as a function of temperature and pressure can be obtained from semi-classical calculations using accurate molecular potential energy curves and dipole transition moments for the alkali-perturber system. The line profiles can then be used as valuable diagnostics of the atmospheres of brown dwarfs and extra-solar planets. Over a limited range of density and temperature, laboratory measurements can be used to validate the potentials which support the spectral line profile theory [2, 3].

References

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