IR PHOTODEPLETION AND REMPI SPECTROSCOPY OF $Li(NH_2Me)_n$ AND $Li(NHMe_2)_n$ CLUSTERS

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Infrared photodepletion and two-colour infrared-ultraviolet REMPI spectroscopy has been undertaken on neutral $Li(NH_2Me)_n$ and $Li(NHMe_2)_n$ clusters in the 3 μm region. REMPI has been successfully employed for small clusters (n = 1-3), whereas larger clusters ($n \geq 4$) show photodepletion spectra. This pattern is thought to be due to the decreasing binding energy of the solvent molecules to the metal atom with increasing solvation number. In particular, solvent molecules in the second solvation shell are much more weakly bound than those in the first shell. Supporting DFT calculations have been used to interpret the spectra and to provide information on the solvation shell structures.