HIGH RESOLUTION INFRARED SPECTROSCOPY ON LINEAR CLUSTER IONS

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A general applicable technique for high resolution infrared direct absorption spectroscopy of ionic complexes is presented. The setup uses the output of tunable diode lasers to sample a planar plasma based upon electron impact ionization of a gas mixture that is expanded supersonically through a long and narrow slit. A rich variety of ionic complexes and cluster ions is formed in the expansion[a] with abundances high enough to be detectable in a production modulation scheme. The performance of the setup is demonstrated on recently obtained spectra of the ν_1 fundamental of the $Ar\cdots DN_2^+$ complex that coincides with the ν_2+4ν_s band resulting in a beautiful example of a strong Fermi interaction[b].

References

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