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 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 $\nu_1$ fundamental of the Ar$_{\cdot}^+$-DN$_2^+$ complex that coincides with the $\nu_2+4\nu_3$ band resulting in a beautiful example of a strong Fermi interaction.

References

