

We present a noncontact temperature-sensing method for microdroplets of water, which relies on temperature dependence of the OH stretching band of the spontaneous Raman spectrum. Temperatures of freely moving evaporating droplets with mean particle diameters of approximately 35 μm have been measured with an accuracy of $\pm 1^\circ\text{C}$ in the range from 10 to 65°C . The method allows the observation of droplet cooling during the initial unsteady phase of evaporation.

Index Headings: Raman spectroscopy; Spectroscopic techniques.