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Solute-solvent interactions and dynamics probed by THz light¹ GERHARD SCHWAAB, FABIAN BÖHM, CHUN-YU MA, MARTINA HAVENITH, Physical Chemistry II, Ruhr University Bochum — The THz range (1–12 THz, 30–400 cm⁻¹) is especially suited to probe changes in the solvent dynamics induced by solutes of different character (hydrophobic, hydrophilic, charged, neutral). In recent years we have investigated a large variety of such solutes and found characteristic spectral fingerprints for ions, but also for uncharged solutes, such as alcohols. We will present a status report on our current understanding of the observed spectral changes and how they relate to physico-chemical parameters like hydration shell size or the lifetime of an excited intermolecular oscillation. In addition, we will show, that in some cases the spectral changes are closely related to the partition function yielding access to a microscopic understanding of macroscopic thermodynamic functions.

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