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Title:Extended frequency range depolarized light scattering study of N-acetyl-leucine-methylamide-water solutions
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Abstract: We have studied the influence of the amphiphilic model peptide N-acetyl-leucine-methylamide (NALMA) on the dynamics of water using extended frequency range depolarized light scattering (EDLS), between 0.3 GHz and 36 THz. This technique allowed us to separate solute from solvent dynamics and bulk from hydration water, providing both characteristic times and relative fractions. In the temperature range 5-65 °C, a retardation factor from 9 to 7 is found for water hydrating NALMA. Moreover, in the same range, a hydration number from 62 to 50 is observed, corresponding to more than two hydration layers. This strong perturbation suggests the existence of a collective effect of amphiphilic molecules on surrounding water molecules.