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Title:Transition of the hydration state of a surfactant accompanying structural transitions of self-assembled aggregates
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Abstract:What role does water play in the self-assembly of soft materials? To understand the correlation between the hydration state and the various self-assembled structures of a nonionic surfactant, terahertz time-domain spectroscopy has been performed for a C12E5 solution with complementary use of small-angle x-ray scattering. Precise observations of the hydration state show clearly that transitions of the hydration state are accompanied by structural phase transitions of the surfactant from hexagonal to micelle to lamellae. These transitions of hydration state suggest that water is not a homogeneous solvent, and the interaction between water and the soft material is important for self-assembly.
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