

Title

UV and IR spectroscopic studies of alkali metal ion-crown ether complexes in the gas phase and on gold surface.

Abstract

In this study, we will present two spectroscopic studies on alkali metal ion-crown ether complexes. One is a gas-phase study of hydrated alkali metal ion-benzo-crown ether complexes by using photodissociation spectroscopy in a cold, 22-pole ion trap. We will discuss the relation between the microhydration and the encapsulation manner. The other one is an infrared study of the complexes on gold surface using surface enhanced infrared absorption spectroscopy (SEIRAS). In this experiment, crown ether molecules are bound on gold surface with hydrocarbon chains and S-Au bonds, and the metal ions are introduced by putting aqueous solutions of alkali metal salts on the surface. The difference in the structure of the crown cavity through the metal encapsulation is examined by SEIRAS in the 800-2000 cm^{-1} region.

Authors

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