

SUPERCONTINUUM CAVITY ENHANCED ABSORPTION SPECTROSCOPY FOR H₂O/D₂O SOLUTIONS

MINGYUN LI, KEVIN LEHMANN, *Department of Chemistry, The University of Virginia, Charlottesville, VA, USA.*

Water and heavy water is always a combination of liquids that we would like to know their concentrations in mixtures. In this work, we are trying to make a cavity enhanced absorption spectroscopy (CEAS) setup in liquid phase in the near infrared region. By combining a self-built supercontinuum light source with a fiber loop, we are able to build a setup that has a very broad wavelength coverage to work in the liquid phase. A side-polished-fiber is used as a sensing region on the loop. Some H₂O/D₂O sample pairs are tested first for its properties. The results show that this new setup has the ability in liquid phase detection, and a detection limit of less than 10% H₂O in D₂O solutions can be reached so far.