

Detection of Water and Ice on Bridge Structures by AC Impedance and Dielectric Relaxation Spectroscopy (Year 3)

We propose to continue to develop low cost sensing systems for monitoring ice and water on bridge deck surfaces. These sensing systems are based on the measurement of the impedance response of the sensor in contact with or close proximity to ice, water or aqueous solutions of deicing chemicals. We are focusing on high frequency dielectric relaxation using time domain reflectometry which probes the physical state of precipitation and deicing chemicals on the deck or road surface (via dielectric relaxation) using low-cost sensors.