Photophysical Properties of Emission Centers in Boron Silicate and Quartz Glass

Researchers from the Netherlands and Rochester (USA) performed measurements of photophysical properties of intrinsic emission centers in boron silicate or quartz glass. Their fluorescence emission shows single photon emission with similar properties as quantum dots or other molecular single photon emitters in the visible.

Different kinds of glasses are often used as substrate to study fluorescence of single photon sources like quantum dots. In particular, for materials that don't produce strong emission profiles understanding the origin of background radiation is important and the intrinsic emission from the substrates found here could even have been mistaken for the design emitters in previous experiments.

Various techniques are applied to fully characterize the emission properties. Sensitive fluorescence emission spectroscopy is important for quantitative detection of the emission signal from single molecule sources.

Featured Paper/ Publication: Non-blinking single-photon emitters in silica, Scientific Reports, 2016

Reference Lab: Todd Krauss, Rochester, USA and Celso de Mello Donega, Utrecht University, Netherlands

Products used: SpectraPro, PIXIS