

# Enhanced Quantum Emitter Density in Hexagonal Boron Nitride via Organic Solvent Treatment

*Wednesday, 26 March 2025 13:44 (3 minutes)*

Single-photon emitters (SPEs) are vital components for advanced quantum communication technologies. Hexagonal boron nitride (hBN), with its wide bandgap and van der Waals properties, presents a promising platform for room-temperature SPE operation. In this study, we substantially increase the density of quantum emitters in hBN by immersing the materials in organic solvents, followed by thermal annealing in an argon (Ar) gas environment. This process not only enhances the yield of quantum emitters but also stabilizes their emission properties, offering a robust and scalable method for producing ultrabright single-photon sources.

**Primary author:** CHAN, Yung-Han

**Co-author:** HSU, Wei-Ting

**Presenter:** CHAN, Yung-Han

**Session Classification:** Poster Talks

**Track Classification:** Condensed Matter Experiment