



Contribution ID: 543

Type: **Poster**

Optical homogeneous broadening and site identification of Er in Si

Thursday 15 December 2022 18:45 (15 minutes)

Using resonant photoluminescence spectroscopy, we show a 350 kHz upper bound on homogeneous broadening, less than 400 MHz inhomogeneous linewidth and long spin lifetimes of Er in Si. These parameters are promising for future quantum information and communication applications.

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Session Classification: Poster session

Track Classification: AIP Congress: AIP: Quantum Science and Technology