**Study of 405 nm Laser-Induced Time-Resolved Photoluminescence Spectroscopy on Spinel and Alexandrite**

**Wenxing Xu (Independent Researcher, Switzerland)**

**Tsung-Han Tsai and Aaron Palke (Gemological Institute of America, USA)**

**Abstract**

**Research on photoluminescence spectroscopy on Cr-doped gem materials has demonstrated great success regarding the identification of gemstones in terms of building rapid test systems in Gemological laboratory. In this study, 405 nm photoluminescence spectroscopy was used to measure the luminescence decay profiles of dozens of natural and lab-grown spinel (including heated spinel) and alexandrite. Spinel and alexandrite are both capable of producing photoluminescence with a long lifetime: spinel between 9 and 23 microseconds and alexandrite from 25 to 53 microseconds. The photoluminescence lifetime and exponential parameters of the half-life demonstrated notable differences in the ranges of decay times between natural, heated, and lab-grown versions of these materials.**

**Recent Publication: Xu W., Tsai T.H., Palke A., Study of 405nm Laser-Induced Time-Resolved Photoluminescence Spectroscopy on Spinel and Alexandrite, Minerals 2023, 13, 419. https://doi.org/10.3390/ min13030419**

Ein Bild, das Menschliches Gesicht, Person, Kleidung, Lächeln enthält.

Automatisch generierte Beschreibung**Biography:**

**Wenxing Xu is a dedicated mineralogist and material scientist. She completed her studies at Geosciences University of China in Wuhan, and later pursued her Master's and PhD at the University of Mainz in Germany, focusing on gemstone materials and origin determination. With extensive experience in the gemstone industry, Wenxing is an accomplished Research Scientist and Gemologist, specializing in identifying color gemstones and interpreting their origins. Her expertise lies in R&D for gemstone identification, developing non-destructive spectroscopic methods for gemological laboratories. With over 20 years of gemological experience across three continents, Wenxing Xu remains at the forefront of cutting-edge research in her field.**

**Email: wenxingx@gmail.com**