Contribution ID: **789** Type: **Poster**

Effect of Heat Treatment on Spectroscopic Properties of Tanzanite

Tuesday 22 May 2018 15:00 (1 hour)

Tanzanite is blue to violet gem variety of mineral zoisite. It is a very popular jewelry gemstone in gems trade. Due to the unique beautiful color of tanzanite is rarely natural; almost tanzanites are usually has been heat-treated to enhance the beautiful color. In this research, color enhancement of natural tanzanite from Tanzania was performed by heat treatment and its spectroscopic characterization was determined. The stones were heat-treated in an atmosphere with the heating temperatures at 400, 500 and 600oC, soaked for 2 hours. Basic gemological equipment was applied to identify the unheated and heated tanzanite sample. In order to study the color change of tanzanite after heat treatment, colors and color differences were measured and evaluated using CIELAB color measurement. The cause of color change and chemical behavior of tanzanite were studied by energy-dispersive X-ray fluorescence spectrometry, UV–visible spectroscopy and diffuse reflectance infrared Fourier transform (DRIFT) spectroscopy. The results of color change and spectral properties may be utilized to enhance the satisfactory color and identification of heated tanzanite.

Primary author: Dr THONGNOPKUN, Pimthong (Faculty of Gems, Burapha University)

Co-author: Ms CHANWANITSAKUN, Phet-Anong (Faculty of Gems, Burapha University)

Presenters: Dr THONGNOPKUN, Pimthong (Faculty of Gems, Burapha University); Ms CHANWANITSAKUN, Phet-Anong (Faculty of Gems, Burapha University)

Session Classification: A013: Materials Physics (Poster)

Track Classification: Material Physics and Functional Materials