Abstract Submitted
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**UV-VIS Spectroscopy of Tattoo Pigments** GAGE MAREK, THOMAS SAUER, PEIFANG TIAN, John Carroll University — The goal of this experiment was to study the optical properties of a large sample, and range of tattoo inks to help evaluate the effectiveness of selecting removal lasers from experience alone. To test this, 108 different inks of different colors and brands were evaluated using UV-NIR spectroscopy. The absorption data received was then used to make CIE color data points. These points were plotted, and then grouped for analysis. A simple two layer skin model was made to model epidermis, and dermis which the tattoo ink resides beneath. This model was applied to the absorption data, and data was analyzed at the commonly used treatment wavelengths. Based on the adjusted data 5 of 15 groups saw safer wavelengths of light which could replace some of the most commonly used lasers for removal. From this it is possible to conclude that doctors would benefit from a device which could accurately predict the absorption spectra of a patient's tattoo, and allow for a safer, less painful removal.

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