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Photoluminescence of Sulfur Doped Dysprosium Oxide SADIE NICKLES, Western Illinois University — Rare-earth (RE) ions, such as Dysprosium, have well-defined luminescent properties that have been studied successfully in the past by using glass structures doped with these RE ions, typically in oxide form, such as Dy2O3. The technique of photoluminescence, where laser light is used to excite the sample, and studying the emitted light from the sample, the dominant electronic transitions in the samples can be examined and their suitabilit determined for applications in solid-state lasers or light-emitting devices. Little, if any, research has been done on the powder form of Dysprosium Oxide, which is more practical for real-life applications such as those involving a solid-state laser or other light emitting devices. Using previous research on these oxides in our laser lab as a basis for this project, a collaboration was undertaken with the chemistry department in order to sinter new samples where sulfur is incorporated into the structure of the pure Dysprosium oxide (Dy20(3-x)Sx) in an attempt to enhance its photoluminescence. This was done in order to enhance its applicability for solid-state laser materials. The photoluminescence spectra of the samples will be collected using laser spectroscopy with an argon-ion laser and a standard GaAs detector

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