

Abstract Submitted
for the TSS18 Meeting of
The American Physical Society

Testing the suitability of a newly engineered smart substrate (VYO4: Er+3, Yb+3, @Nd+3 nanoparticles) for future remote temperature sensing experiments¹ KASSIE MARBLE, ZACHARY COKER, VLADISLAV YAKOVLEV, None — The progress of biomedical science depends on the availability of tools and instruments capable of analyzing biological systems in their natural environment without disturbing their behavior. Advanced optical characterization techniques, such as Raman spectroscopy, are powerful non-invasive and non-destructive means for obtaining the chemical properties of materials with applications in several fields including agriculture, chemistry, medicine, and materials science. By tailoring the properties of nanomaterials, a wide range of new biomedical applications including remote temperature sensing with existing chemical identification and imaging techniques has become available. I will present the design and outline of the optical system that I helped to develop during this summer. This system tests the suitability of a smart substrate composed of a newly engineered temperature sensitive water-based biocompatible core/shell up-conversion nanoparticle (UCNP) for remote temperature sensing. Future applications of this optical imaging system will be discussed as well.

¹The authors gratefully acknowledge the financial support of the Texas AM USRG program and the National Science Foundation.

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None

Date submitted: 16 Mar 2018

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