

Abstract Submitted
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Testing the suitability of a newly engineered smart substrate (VYO4: Er+3, Yb+3, @Nd+3 nanoparticles) for future remote temperature sensing experiments.¹ KASSIE MARBLE, Tarleton State University, ZACHARY COKER, VLADISLAV YAKOVLEV, Texas AM University — 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 three separate optical systems 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.

¹Texas AM USRG Program

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None

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