

Abstract Submitted  
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**Health Physics Applications in Nuclear Forensics, Epidemiology,  
Radiological Emergency Response and even Regulatory Compliance.<sup>1</sup>**

ROBERT HAYES, RYAN O'MARA, FATMA ABDELRAHMAN, S. JOSEPH COPE<sup>2</sup>, North Carolina State University, RETROSPECTIVE DOSIMETRY AND NUCLEAR ASSAY TEAM — Using the solid state dosimetry techniques of Thermoluminescence, Optically Stimulated Luminescence and Electron Paramagnetic Resonance, new research has now demonstrated novel applications in nuclear forensics and radiological emergency response dosimetry. These methods are already known for serving as the gold standard in epidemiology and archeological dating of particular environmental materials. Our research results do not only provide dosimetric measurements from external radiation sources, but also internal. If internal emitters are sought, then food and airborne radiological contamination would have to be characterized. Doing this with standard assay systems for confined materials has been done but also, rapid measurement techniques for discrimination of anthropogenic from naturally occurring radioaerosols (e.g., radon and its progeny) are also being developed. All of these are currently being accomplished in a single research group to be reviewed in this presentation.

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