

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-78-329 **Michele L Joyner*** (mjoyner@westga.edu), Mathematics Department, State University of West Georgia, 1600 Maple Street, Carrollton, GA 30118. *Implementing a Reduced Order POD Methodology with Electromagnetic NDE Techniques.*

In previous work, we demonstrated the viability of using the reduced order Proper Orthogonal Decomposition (POD) methods to reduce the total computational time to detect damages in structures such as airplanes and pipelines when used in conjunction with eddy current nondestructive evaluation methods. In this talk, we consider two different techniques (a POD/Galerkin technique and a POD/Interpolation technique) for implementing the reduced order POD method in the context of this NDE problem. We will talk about the advantages and disadvantages of each implementation. In addition we will examine what impact the choice of snapshots has on the ability to detect damages. We will discuss the number of snapshots required, the relationship between the snapshots as well as whether or not the snapshots can be randomly chosen. (Received September 10, 2004)