The prediction of noise from turbulence continues to be a curious problem in fluid dynamics over the course of many decades. Acoustic analogies represent an exact rearrangement of the equations of motion for the purpose of noise prediction. We review major developments in the theories of Lighthill, Ffowcs-Williams, Lilley, and Tam and their associated historical motivation. The limitations of these models are identified and resolved through a new approach. The mathematics of the approach are described. The new capability is illustrated through the prediction of noise from isotropic turbulence and from a high-speed jet flow. The implications of the new model and associated future research will be outlined. Finally, a short description of other research endeavors within the group will be presented.

**Bio** — Assistant Professor S. A. E. Miller, Ph.D. conducts research in theoretical fluid dynamics, theoretical aeroacoustics, and related disciplines. He joined the University of Florida Department of Mechanical and Aerospace Engineering in August of 2016. Previously, he worked for seven years as a Research Aerospace Engineer at the National Aeronautics and Space Administration (NASA) Langley Research Center. He received his Ph.D. and M.S. in Aerospace Engineering from the Pennsylvania State University and his B.S. in Mechanical Engineering from Michigan State University. He received numerous awards including: The NASA Early Career Achievement Medal, the Doug Ensor Award, the AIAA Hampton Roads Section Robert A. Mitcheltree Young Engineer of the Year Award, and the AIAA Laurence J. Bement Young Professional Paper Award. His hobbies involve art history and pure mathematics.

We would like to thank the College of Graduate Studies for their support of our Distinguished Seminar Series.

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