

SIAM/APPLIED AND NUMERICAL ANALYSIS SEMINAR

Date: November 18, 2020

Speaker: S.A.E Miller

Title: Why is a Supersonic Aircraft like a Tornado or Why is a Raven like a Writing Desk?

Abstract: We explore the physical and mathematical parallels between supersonic aircraft and tornadoes. These vehicles and natural fluid flows create noise through similar physical mechanisms, much like the notes from a raven or a writing desk of Reverend Charles Dodgsons (Lewis Carroll) Raven and Writing Desk riddle within Alices Adventures Underground (Alice in Wonderland, 1865). Equations of motion and their history are reviewed with multiple statistical acoustic solutions. These are applied to the classic problem of turbulent jet flow, the supersonic aircraft, and the tornado.