

# *distinguished speakers series*

The Department of Mechanical and Materials Engineering presents:

## **Dr. Stéphane Moreau**

*Department of Mechanical Engineering, Université de Sherbrooke*

### **Aeroacoustics of complex turbulent flows**

Noise reduction driven by more stringent specifications requires the introduction of acoustic predictions in the design process of many flow-moving machines. To achieve such a goal the latest advancements in aeroacoustics of complex turbulent flows will be presented. This will involve flows in larger and more realistic systems than those considered in the years 2000, which could be then be seen as a third golden age of aeroacoustics as quoted by Wang et al. and Bodony et al. at the time. The CAA methods will range from Direct Noise Predictions from compressible Navier-Stokes solutions or from the Lattice Boltzmann Method, to hybrid predictions combining Large Eddy Simulations of the noise sources and acoustic analogies to propagate these noise sources in the far field. The latter provides an efficient way to compute noise radiation of complex installed systems. All methods are first illustrated on the canonical problems of jet noise and airfoil self-noise, and finally on more complex systems such as low-speed fan systems or modules, and high-speed turboengines.



**FRIDAY, JANUARY 19<sup>TH</sup> - 11:30 a.m. McLAUGHLIN HALL ROOM 312**