



Manchester Metropolitan University

Department of Computing and Mathematics (DOCM)

Dalton Research Seminar

Title: "Advanced Flow Visualization: Are You Getting a Good Mixing?"

Date: 26th April 2007 (Thursday)

Time: 14:30-15.30

Venue: DRI Seminar Room E0.07.



Speaker: Dr. Robert S. Laramee,
Lecturer, Department of Computer Science,
Swansea University, United Kingdom,

<http://www.cs.swan.ac.uk/~csbob/>

Abstract: Swirl and tumble motion are two important, common fluid flow patterns from computational fluid dynamics (CFD) simulations typical of automotive engine simulation. These two motions provide optimal mixing of fuel and oxygen during an engine cycle. We study and visualize swirl and tumble flow using several advanced flow visualization techniques: direct, geometric, texture-based, and feature-based. When illustrating these methods, we describe the relative strengths and weaknesses of each approach across multiple spatio-temporal domains typical of an engineer's analysis. The result is the most comprehensive, systematic search for swirl and tumble motion ever performed. Based on this investigation we offer perspectives on where and when these techniques are best applied in order to visualize the behaviour of swirl and tumble motion.