

## **Palestra no IMECC**

**Dia:** 17 de setembro, 11:00

**Local:** Sala 121, 11:00

**Título:** "Optimally Blended Spectral-Finite Element Scheme for Wave Propagation, and Non-Standard Reduced Integration"

**Palestrante:** Mark Ainsworth Strathclyde University – Scotland (joint work with Hafiz Wajid)

We describe the recent work on the dispersive and dissipative properties of a novel scheme for computational wave propagation obtained by averaging the consistent (finite element) mass matrix and lumped (spectral element) mass matrix. The objective is to obtain a hybrid scheme whose dispersive accuracy is superior to both of the schemes. We found the optimal value of the averaging constant for all orders of finite elements and proved that for this value the scheme (a) tends to exhibit phase lag; (b) is two orders more accurate compared with finite and spectral element schemes; (c) the absolute accuracy is of this scheme is  $O(p^{-3})$  and  $O(p^{-2})$  times better than that of finite and spectral element schemes respectively.