THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

PolyU Numerical PDEs Seminar

Prof. Erik BURMAN
University College London

Topic
Recent results on finite element methods for incompressible flow at high Reynolds number

Date| Time
07 June 2024 (Friday) | 10:30am – 11:30am (HK Time)

Venue
TU817, Main Campus

Abstract
The design and analysis of finite element methods for high Reynolds flow remains a challenging task not least because of the difficulties associated with turbulence. In this talk we will first revisit some theoretical results on interior penalty methods using equal order interpolation for smooth solutions of the Navier-Stokes' equations at high Reynolds number and show some recent computational results for turbulent flows. Then we will focus on so called pressure robust methods, i.e. methods where the smoothness of the pressure does not affect the upper bound of error estimates for the velocity of the Stokes' system. We will discuss how convection can be stabilized for such methods in the high Reynolds regime and, for the lowest order case, show an interesting connection to turbulence modelling

ALL ARE WELCOME