



Computational Fluid Dynamics & Biomedical Science

The IEEE Computer Society and the Pawsey Supercomputing Centre invite you attend a seminar on applications of Computational Fluid Dynamics (CFD) in the Biomedical Sciences by Dr. Julien Cisonni and Prof. Ben Mullins. This presentation will be focusing on respiratory airflows and airway-related pathology.

Presentation Abstracts:

Sleep Apnoea and Snoring - Dr Julien Cisonni, Curtin University

Aiming to understand the causes of sleep apnoea and snoring, and assess the treatment options supercomputing resources have been used to perform 3D computer simulations of the human upper airway. While snoring refers to the vibration of the soft tissues of the upper airway, sleep apnoea refers to how the airway closes off when the person stops breathing. By looking at the oscillations of the soft palate, which simply refers to the interaction between the airflow and soft tissue, it will be possible to have an understanding of who is more susceptible to suffer from snoring and which patients are more likely to respond to surgical treatment for snoring problems, which will in turn benefit both surgeons and patients.

Respiratory Airflow and Particle Deposition - A/Prof Ben Mullins, Curtin University

Inhalation is the most important route of exposure to environmental and occupational pollutants, as well as an important means of medication delivery. Furthermore, many diseases such as asthma and cystic fibrosis are associated with localised or transient changes in airway geometry and/or airflow stagnation. For these reasons, accurate simulation of airways and aerosol deposition and transport are vitally important. All previous CFD work apart from the presenters in the field have utilised static model geometries – i.e. lungs that do not expand. Current results of the “moving mesh” approach will be presented, as well as future outlooks.

Date/Time: 5th November, 4:00pm

Venue: Pawsey Supercomputing Centre, Burvill Court, Kensington

RSVP and more information: <http://www.pawsey.org.au/event/computational-fluid-dynamics-biomedical-science-patient-specific-simulation>

Proudly sponsored by



The Pawsey Supercomputing Centre is an unincorporated joint venture of CSIRO and the four public WA universities with funding from the State Government. The Pawsey Supercomputing Centre fosters and promotes scientific and technological innovation through the provision of supercomputing, data and visualisation services to the research community, commercial organisations and government agencies. In 2009, the organisation was charged with establishing and operating the \$80 million Pawsey Centre by the Australian government.

