

**LUNDI 16 JUIN 2014 – 11h15**

**Amphi : salle 230 Bâtiment Sadi Carnot  
2<sup>ème</sup> étage Dpt INSA-GEN**

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**Présentera**

« Resonance of a natural convection boundary layer and its application for enhancing heat transfer »

## ABSTRACT

Resonance refers to the tendency of a system to oscillate with greater amplitudes at some frequencies than at other frequencies. It occurs when a system is excited at frequencies close to the natural frequency of the system. Resonance finds applications in mechanical, electrical, optical, medical, acoustical, and many other systems. Resonance may also take place in natural convection boundary layers, which is the topic of this presentation. In this talk, the process of determining the natural (characteristic) frequency of a thermal boundary layer and the way of triggering resonance in the boundary layer will be demonstrated. A passive strategy for triggering resonance and enhancing heat transfer by natural convection will also be discussed.

## INFORMATION ABOUT THE SPEAKER

A/Prof Chengwang Lei completed his Bachelor and Master degrees in Mechanical Engineering at Huazhong University of Science & Technology in China and did a PhD degree in Civil & Resource Engineering at The University of Western Australia. Since the completion of his PhD study he has held a number of research and academic positions across multiple disciplines, first at James Cook University and later at The University of Sydney. A/Prof Lei's research has been focused mainly on buoyancy driven flows in the areas of energy and water with environmental and industrial applications. His research interest spans over experimental modelling, numerical simulation and analytical investigation of a range of fluid and thermal engineering problems. Much of his research has been supported by the Australian Research Council's National Competitive Grants Program.