

Date: **March 30th**

Time: **11:00 AM**

Location: **Maryland Hall 110**

Speaker: **Dr. Paul Linden**
 University of California, San Diego

Title: **"Architectural fluid dynamics"**

Abstract

The flow of air inside a building and the connections with the exterior are crucial to the comfort and well being of the occupants. Buildings use an enormous amount of energy, with heating and cooling accounting for about 10% of the total energy use in the US. This energy use also contributes significantly to greenhouse gas emissions. Over the past 10 years or so there has been increasing interest in low-energy ventilation designs, particularly for cooling which requires much more energy than heating. Since ventilation is most effective at removing heat when the extracted air is hot, these designs inevitably involve the development of stratification within the building. In this talk I will discuss the fluid mechanics associated with these flows and show that the presence of stratification plays a major role in the internal dynamics. I will describe both natural and mechanical ventilation and discuss the effects of stratification on cooling efficiency, indoor air quality and occupant comfort.