



香港城市大學  
City University of Hong Kong

## Laboratory aim for computational building fire dynamic study

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**Principal Investigator:** Dr Charles Chor Kwan CHENG

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**Abstract:**

Computational fluid dynamics (CFD) is currently a pre-dominant method applied to study building fire dynamics. This is one of the major subjects in fire engineering courses but time that can be delegated to teach this subject is always insufficient. To master the subject, practical experience is needed to verify what has been simulated on the computer but it is not practical to demand all students possess such experience. Laboratory based experimentation is a practical and effective exercise to achieve such cross-verification on selected case studies. This project aims to develop a laboratory setup to provide visualization of smoke spreading over typical apartments in Hong Kong. Students will first be asked to build up the physical apartment model, visualize the distribution of smoke throughout the apartment and finally to produce computational simulation for verification. During this exercise, students receive hands-on experience of using CFD and are also able to tell whether their CFD results are realistic or accurate. Perceptions received from the experiments are the basic guidelines for evaluating the performance of the students, i.e. self-assessment.