LTCC Proposed Course

- Title: An introduction to spherical and Euclidean buildings

- Basic Details:
  - Core Audience: 2nd/3rd year, pure
  - Course Format: Extended

- Course Description:
  - Keywords: Spherical building, Bruhat-Tits building,
  - Syllabus: Spherical Buildings are a geometric description of simple algebraic groups over arbitrary fields, whereas the main examples of affine buildings, namely Bruhat-Tits buildings, come from reductive algebraic groups over local non-Archimedean fields. We will discuss the structure theory of buildings, as outlined in Weiss’s books, culminating in a brief discussion of the classification of Bruhat-Tits buildings. The emphasis will be on the buildings themselves rather than their (important) connections to other areas of mathematics, such as geometry, number theory and topology, which the reader is encouraged to read about in Lizhen Ji’s article.
  - Recommended reading: Richard Weiss, The structure of spherical buildings; Richard Weiss, The structure of affine buildings
  - Additional Optional reading: Lizhen Ji, Buildings and their applications in geometry and topology
  - Prerequisites: General background in geometry and algebra will suffice.

- Format:
  - No of discussion/problem sheets (typically 4 for extended courses, and 1 for intensive courses, with solutions): 4
  - Electronic lecture notes (these are strongly encouraged, as they will form the core of the individual study of the students): Slides will be provided
  - Necessary support facilities: Whiteboard+markers
  - Necessary software requirements for computing facilities: None
  - Proposed timing: Early autumn (will be away on Monday October 6th, so suggest 4x2.5hours)
  - Lecture/computer session/tutorial/discussion split (hours of each): 10h lecture

- Lecturer Details:
  - Lecturer: Dr. Jeroen Schillewaert
  - Lecturer home institution: Imperial College London
  - Lecturer e-mail: jschillewaert@gmail.com
  - Lecturer telephone number: 020/759.43469