

## LTCC Basic Pure Course

- Title: **Finite Simple Groups**
- Basic Details:
  - Core Audience: Pure
  - Course Format: Basic/Core (10h)
- Course Description
  - The classification of finite simple groups is one of the major mathematical achievements of all time. The course will describe the construction of properties of a representative sample of the finite simple groups, including some of each type (alternating, classical, exceptional and sporadic).
  - Keywords: Alternating groups, general linear groups, Mathieu group.
  - Syllabus: 1. Alternating Groups; 2. The general linear groups, including simplicity of  $PSL_n(q)$  via Iwasawa's Lemma, 3. Forms and classical groups, 4. Quaternions, octonions and groups of type  $G_2$ , 5. Sporadic groups:  $M_{24}$ .
- Recommended reading: R. A. Wilson, *Finite Simple Groups*.
- Additional/Optional reading: D.E. Taylor, *The Classical Groups*. Heldermann, Berlin, 1992.
- Format: Proposed timing: early Autumn 2009
- Lecture details: Professor R. A. Wilson, QMUL.