Welcome Home Workshop 2014

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TITOLO: Coxeter groups, polytopes and applications

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Abstract

Coxeter groups are groups generated by involutions, which have, in the finite case, a geometrical interpretation as reflection groups. They can be divided into two main families: crystallographic and non-crystallographic ones. In this talk I will introduce their main properties and their connection with Lie theory and geometry. I will then show how to construct a class of polytopes, whose symmetry is described by non-crystallographic Coxeter groups, which has a wide range of applications in physics (quasicrystals), chemistry (fullerenes) and biology (viruses).