

## **TITLES AND ABSTRACTS**

**Tara Brendle (Glasgow University, UK)**

**Title: Symmetries of manifolds**

Abstract: Riemann introduced manifolds in the mid-19th century as a mechanism for understanding  $n$ -dimensional space. Landmark achievements in mathematics since then include the classification of 2-manifolds in the early 20th century as well as the more recent (though more complicated) classification of 3-manifolds completed by Perelman. However, the story does not end with classification: there is a rich theory of symmetries of manifolds, encoded in their mapping class groups. In this talk we will explore some aspects of mapping class groups in dimensions 2 and 3, with a focus on illustrative examples.

**Tere M. Seara (UPC, Barcelona, Spain)**

**Title: Arnold diffusion: an overview and recent results**

Abstract: In this talk I will talk about the phenomenon known as Arnold diffusion. Equivalently we will show the mechanism that creates big effects after applying arbitrarily small forces for a sufficiently large time. In the language of Hamiltonian Systems, we will consider small periodic in time perturbations of an integrable system. It is known that the energy is preserved in an integrable system, as well as other quantities known as actions. We will show that an arbitrarily small perturbation can create big increments in the energy (and in the actions) and we will explore the dynamic mechanism that is behind this phenomenon.