



Centro de **Matemática**
Universidade do Porto

Geometry and Topology seminar

Date. January 22nd, 15h30

Place. Room 0.04

Speaker. Sílvia Anjos (IST, Lisbon)

Title. Seidel's morphism of toric 4-manifolds.

Abstract. We explain how to calculate, in some particular cases, the Seidel representation of $\pi_1(\text{Ham}(M, \omega))$ in the units of the quantum homology ring, where $\text{Ham}(M, \omega)$ denotes the group of Hamiltonian symplectomorphisms of a closed symplectic manifold (M, ω) . This is very difficult to calculate in general. However, following the work of D. McDuff and S. Tolman, we make some progress by computing explicit expressions of the Seidel elements in the case of 4-dimensional NEF toric manifolds. From these expressions we can obtain the quantum homology ring of these manifolds. We also give explicit formulas for the Seidel elements in some non-NEF cases and we give examples of manifolds on which the Seidel morphism is not injective.

These results are closely related to recent work by Fukaya, Oh, Ohta, and Ono, González and Iritani, and Chan, Lau, Leung, and Tseng. The main difference is that in the 4-dimensional case the methods we use are more elementary: they do not rely on open Gromov–Witten invariants nor mirror maps. We only use the definition of Seidel's elements and specific closed Gromov–Witten invariants which we compute via localization. This is joint work with Rémi Leclercq.