

## **INTERSECTION OF PARABOLIC SUBGROUPS IN ARTIN GROUPS**

**Fudan Topology Seminar**

**Speaker: Maria Cumplido**

**University of Seville**

**Time: Tue, May. 16th, 15:00-17:00**

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**Abstract:** Artin groups are a natural generalisation of braid groups from an algebraic point of view: in the same way that braids are obtained from the presentation of the symmetric group, other Coxeter groups give rise to more general Artin groups. There are very few results proven for every Artin group. To study them, specialists have focused on some special kind of subgroup, called “parabolic subgroups”. These groups are used to build important simplicial complexes, as the Deligne complex or the recent complex of irreducible parabolic subgroups. The question “Is the intersection of parabolic subgroups a parabolic subgroup?” is a very basic question whose answer was only known for RAAGs until 2018. In this talk, we will speak about the progress on that matter since then, starting with the breakthrough of the positive answer for spherical-type Artin groups and we will see how we can answer this question in Artin groups of large type, by using the geometric realisation of the poset of parabolic subgroups, that we have named “Artin complex”. In particular, we will show that this complex in the large case has a property called systolicity (a sort of weak CAT(0) property) that allows us to apply techniques from geometric group theory. These are a joint works with Volker Gebhardt, Juan González-Meneses, Bert Wiest, Alexandre Martin and Nicolas Vaskou.