

## **Geometric connections between Artin groups and Artin Monoids**

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Artin groups are a generalization of braid groups, first defined by Tits in the 1960s. In their most general settings, very little is known about Artin groups. However many of the questions which are open for Artin groups can be easily answered for Artin monoids. This motivates the study of the connection between Artin groups and Artin monoids. In this talk, I will discuss two different geometric constructions that illustrate this connection. First I will talk about the monoid Deligne complex, an analog for the more well known group Deligne complex. I will discuss how this may help us better understand the Deligne complex for the Artin group, and make progress towards the  $K(\pi,1)$ -conjecture. I will also discuss the monoid Cayley graph, a Cayley graph for the Artin group built with an infinite generating set. I will discuss properties of the monoid Cayley graph and how this Cayley graph can help us understand the connection between the group and monoid.

**(joint work with Rachael Boyd, Ruth Charney, Sarah Rees)**