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THE ASYMPTOTIC GEOMETRY OF CERTAIN ARTIN GROUPS

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Artin groups emerged from the studying of braid groups and hyperplane arrangements, and they are closely connected to Coxeter groups, 3-manifold groups, buildings and many others. However, these groups are poorly understood except for very few cases. Our goal is to explore the very rich large scale geometry of some Artin groups, and possibly make comparisons with quasi-isometric rigidity of higher rank lattices. In the first part of the minicourse, we will review some background on Artin groups and show certain classes of Artin groups are non-positively curved in an appropriate sense. In the second part, we will show how the interaction of non-positively curve geometry and the combinatorial structure of Artin groups leads to quasi-isometric rigidity results in certain cases. This course is based on joint work with D. Osajda.