

**VENTOTENE INTERNATIONAL WORKSHOPS VII  
HIGHER DIMENSIONAL HYPERBOLIC GEOMETRY  
VENTOTENE, 8-13 SEPTEMBER 2025**

RECIPROCITY OBSTRUCTIONS IN THIN ORBITS

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We consider the local-to-global question for orbits of thin groups. We will discuss Apollonian circle packings (building on the lectures of Alex Kontorovich earlier in the week), continued fractions, and some related problems. Recall that in the Apollonian case, we ask about the integers which occur as curvatures in a packing, observe that they satisfy certain congruence restrictions, and ask whether all sufficiently large integers otherwise occur. In some situations, there are some interesting further obstructions. Time permitting, I will also discuss some work in progress on Eisenstein circle packings. (Joint work includes work with Haag, Kertzer, and Rickards.)