1046-A0-12 **Peter Sarnak***, Princeton University, Department of Mathematics, Princeton, NJ. *Integral Appollonian packings and thin orbits.*

An apollonian packing of circles in the plane is integral if the curvatures of all the circles are integers.There are infinitely many distinct such packings and interesting (and mostly difficult)diophantine questions about their curvatures have been raised. We will explain the setup and discuss these questions and give some answers, highlighting the role played by 'small' subgroups of the group of 4 by 4 integer matrices with determinant equal to +1 or -1 . (Received April 22, 2008)