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Ricardo Diaz, Quang-Nhat Le* (qnhatle@math.brown.edu) and **Sinai Robins**. *Counting lattice points with solid-angle weights in irrational polytopes.*

Counting the number of lattice points inside a polytope is a classical enumerative problem with far-reaching applications in number theory, algebraic geometry, combinatorics, and more. This lattice-point count and its variants fall into the realm of the Ehrhart theory of lattice-point enumerating functions of polytopes. One of the most well-known variants is Macdonald's solid-angle sum which counts lattice points in a polytope, with solid-angle weights.

Previously, the Ehrhart theory was studied mostly in the case of integer dilates of rational polytopes. In a joint work with Ricardo Diaz and Sinai Robins, we use the techniques of Fourier analysis to study the solid-angle sums in the general case of real dilates of real polytopes. We also obtain a closed form for the codimension-1 coefficient of the solid-angle sum; the leading coefficient is trivially the volume of the given polytope. (Received September 20, 2016)