

Divisible Convex Sets with Properly Embedded Cones

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A divisible convex set is a convex, bounded, and open subset of an affine chart of the real projective space, on which acts cocompactly a discrete group of projective transformations. These objects have a very rich theory, which involves ideas from dynamical systems, geometric group theory, (G,X) -structures, and Riemannian geometry with nonpositive curvature. Moreover, they are an important source of examples of discrete subgroups of Lie groups which are not lattices (although their construction often uses arithmetic lattices). For instance, they have links with Anosov representations.

In this talk, we will survey known examples of divisible convex sets and the discrete groups that divide them, and then describe new examples obtained in collaboration with Gabriele Viaggi, of irreducible, non-symmetric, and non-strictly convex divisible convex sets in arbitrary dimensions (at least 3).

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