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Cycle space constructions for exhaustions of flag domains

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Abstract. A real semisimple group has only finitely many orbits on every flag manifold of its complexification. To each of these orbits there is a naturally associated space of algebraic cycles, and that cycle space is known to be a Stein manifold. In the past, properties of the cycle space have been proved by transforming functions or cohomology from, *e.g.*, an open orbit in the flag manifold to its cycle space. Here the opposite is done: given an irreducible representation of a maximal compact subgroup of the real semisimple group, a canonical strictly plurisubharmonic exhaustion of the cycle space is constructed. This is then transformed to a (continuous) q-pseudoconvex exhaustion of the associated open orbit, where q is the complex dimension of the cycles under consideration.

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