

Park, Dae Heui; Suh, Dong Youp

Equivariant semi-algebraic triangulations of real algebraic G -varieties. (English)

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Let $M \subset \mathbb{R}^m$ denote a real algebraic variety and assume that a compact real Lie group G acts algebraically on M . A semi-algebraic triangulation of the orbit space is defined to be a countable locally finite simplicial complex K of finite dimension in some \mathbb{R}^n together with a homeomorphism $M/G \rightarrow |K|$ such that the map $M \rightarrow M/G \rightarrow |K|$ is semi-algebraic. As a first result the authors obtain that there is a semi-algebraic triangulation of M/G that is compatible with the orbit types. On the one hand, this result is applied to introduce the structure of a certain equivariant CW -complex on M and to obtain an equivariant simple homotopy type for compact M . On the other hand, the first result is used to prove that for finite G there exists an equivariant semi-algebraic triangulation of M , that induces a semi-algebraic triangulation of M/G , compatible with the orbit types.

Reviewer: J.Hausen (Konstanz)

MSC:

- 14P10 Semialgebraic sets and related spaces
- 55Q91 Equivariant homotopy groups
- 14L30 Group actions on varieties or schemes (quotients)
- 22E99 Lie groups
- 57S25 Groups acting on specific manifolds

Cited in **5** Documents

Keywords:

real algebraic varieties; equivariant triangulation; orbit space; semi-algebraic triangulation; equivariant simple homotopy

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