Kozlowski, Andrzej; **Yamaguchi, Kohhei**

Spaces of algebraic maps from real projective spaces into complex projective spaces. (English)

Zbl 1209.55005

Félix, Yves (ed.) et al., Homotopy theory of function spaces and related topics. Proceedings of the Oberwolfach workshop, Mathematisches Forschungsinstitut Oberwolfach, Germany, April 5–11, 2009. Providence, RI: American Mathematical Society (AMS) (ISBN 978-0-8218-4929-3/pbk). Contemporary Mathematics 519, 145-164 (2010).

The authors study the homotopy types of spaces of algebraic (rational) maps from real projective spaces into complex projective spaces. They showed in a previous paper that in this setting the inclusion of the space of rational maps into the space of all continuous maps is a homotopy equivalence. In this paper they prove that the homotopy types of the terms of the natural "degree" filtration approximate closer and closer the homotopy type of the space of continuous maps and obtain bounds that describe the closeness of the approximation in terms of the degree. Moreover, they compute low dimensional homotopy groups of these spaces. These results combined with those of their previous paper can be formulated as a single statement about $\mathbb{Z}/2$-equivariant homotopy equivalences between these spaces, where the $\mathbb{Z}/2$-action is induced by the complex conjugation. This generalizes a previous result obtained by authors in 1999.

For the entire collection see [Zbl 1194.55003].

Reviewer: Simona Settepanella (Pisa)

MSC:

55P35 Loop spaces
55P10 Homotopy equivalences in algebraic topology
55P91 Equivariant homotopy theory in algebraic topology
55P15 Classification of homotopy type

Keywords:

algebraic rational maps; homotopy types; homotopy groups

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