On the homotopy of the space of maps to a toric varietiy

Kohhei Yamaguchi *

Let X and Y be real algebraic varieties. Then a map $f : X \to Y$ is called *an algebraic map* (or *regular map*) if it is represented by polynomials and we denote by $\mathrm{Alg}(X, Y)$ (resp. $\mathrm{Map}(X, Y)$) the space of all algebraic maps (resp. continuous maps) from X to Y. We shall consider what extent the space $\mathrm{Alg}(X, Y)$ approximates the space $\mathrm{Map}(X, Y)$ in the homotopy category (so called the Atiyah-Jones type theorem, eg. [4]). Until now A. Kozlowski and the author studied this problem for $(X, Y) = (\mathbb{R}\mathrm{P}^m, \mathbb{K}\mathrm{P}^n)$ ($\mathbb{K} = \mathbb{R}$ or $\mathbb{C}$). (eg. [1], [3]). In this talk we shall study this problem when $X = \mathbb{R}\mathrm{P}^m$ and Y is a projective smooth toric variety. The talk is based on the joint work with A. Kozlowski and M. Ohno [2].

References

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*Department of Mathematics, University of Electro-Communications, Chofu, Tokyo 182-8585, Japan (kohhei@im.uec.ac.jp)