In a search of maximal real structures on punctual Hilbert schemes of surfaces

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Abstract

In a recent joint work with R. Rasdeaconu, we investigated the maximality of the Hilbert square of real algebraic varieties. We observed that, starting from dimension two, many deformation classes of algebraic varieties do not contain any real variety whose Hilbert square is maximal. In particular, we found that the K3-surfaces have never a maximal Hilbert square. In this talk I will speak on generalizations of these results to Hilbert schemes of n points for any n as well as to hyperkähler varieties of $K3^{[n]}$-type. The talk is based on a work in progress with Simone Billi, Lie Fu, and Annalisa Grossi.

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