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Moduli spaces of Higgs bundles over a real curve

The moduli space M of stable Higgs bundles over a smooth complex projective curve admits a well-known hyperkahler metric structure. If the curve is real, then the real locus $M(\mathbb{R}) \subset M$ is a so-called BAA-brane, meaning that it is Lagrangian with respect to half of the hyperkahler structure and complex with respect to the other half.

In this talk, I will explain how to calculate the \mathbb{Z}_2 -Betti numbers of $M(\mathbb{R})$. The proof uses a motivic formula for M due to Schiffmann, Mellit, and Fedorov-Soibelman-Soibelman.