

Abundance and SYZ conjecture in families of hyperkähler manifolds

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The hyperkähler SYZ conjecture predicts that a nef line bundle of vanishing BBF square on a hyperkähler manifold gives rise to a holomorphic Lagrangian fibration. In particular, such line bundle is expected to be semiample, which gives a connection of the SYZ conjecture with the generalized abundance conjecture. One can introduce a moduli space parametrizing pairs of a hyperkähler manifold and a semiample line bundle of vanishing BBF square on it. One can study this moduli space using the special families of hyperkähler manifolds called degenerate twistor families. Using this technique we show that an analogue of the global Torelli theorem holds for each connected component of the moduli space and deduce deformation invariance of semiampleness. The talk will be based on a joint work with Misha Verbitsky.

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