CUBIC THREEFOLDS WITH AN INVOLUTION AND THEIR INTERMEDIATE JACOBIANS

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Abstract:

We study the moduli space of cubic threefolds admitting an involution via the period map sending such a cubic threefold to the invariant/anti-invariant part of the intermediate Jacobian. Our main result is global Torelli holds for the period map. Key ingredients of the proof include a description of the invariant/anti-invariant part of the intermediate Jacobian as a Prym variety and a detailed study of certain positive dimensional fibers of the corresponding Prym map. The proof also relies on the results of Donagi-Smith, Ikeda and Naranjo-Ortega on related Prym maps. This is joint work with S. Casalaina-Martin and L. Marquand.