The Shafarevich conjecture of holomorphic convexity for algebraic varieties with linear fundamental groups

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Abstract

The Shafarevich conjecture for holomorphic convexity predicts that the universal covering space of a projective algebraic complex manifold should be holomorphicallly convex. The general case seems very difficult but, when the fundamental group has a faithful Zariski dense representation in a complex algebraic group G, the method of harmonic mappings can be used succesfully in combination with Simpson's results on character varieties of fundamental groups of algebraic manifolds. Building on earlier work by Jost-Zuo and Katzarkov, I have completed the proof of the conjecture when G is reductive. A work in preparation with Pantev, Ramachandran and Katzarkov should settle the general case.