

What do we know about the Hodge conjecture?

Abstract: In the middle of the 20th century Hodge pioneered the use of certain analytic and topological tools in algebraic geometry. Among other things, he gave necessary conditions for a homology class on a projective algebraic manifold to come from a subvariety. The converse statement has come to be called the Hodge conjecture. I want to explain all this, and say a few words about some very special examples where it can be checked completely.