1147-14-306 **Jeff Achter*** (achter@math.colostate.edu), Department of Mathematics, Colorado State University, Fort Collins, CO 80523-1874, and **Sebastian Casalaina-Martin** and **Charles Vial**.
Algebraicity of intermediate Jacobians and a question of Mazur.

Mazur has raised a family of questions, whose simplest incarnation is as follows. Let $X/\mathbb{Q}$ be a smooth projective threefold which admits no nontrivial holomorphic differential 3-form. Is there an abelian variety $A/\mathbb{Q}$ which models the middle cohomology of X, in the sense that $H^3(X_{\overline{\mathbb{Q}}}, \mathbb{Z}_\ell(1)) \cong H^1(A_{\overline{\mathbb{Q}}}, \mathbb{Z}_\ell)$?

It turns out that one way of addressing Mazur's question is to understand the algebraic nature of the (transcendentally defined) intermediate Jacobian. I'll explain this circle of ideas, and in particular how tracking algebraic points on these abelian varieties yields nontrivial results in Hodge theory. (Received January 17, 2019)