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A crystalline variational Tate conjecture

I will discuss the formulation of a variational Tate conjecture for smooth, proper families of varieties in characteristic p in terms of crystalline cycle classes, and explain the proof of the conjecture for line bundles. A key new tool is a recent continuity theorem in topological cyclic homology, which is joint with B. Dundas. I will also discuss the proof of an infinitesimal version of the conjecture, which provides an equal characteristic p analogue of the deformational p -adic Hodge conjecture of Bloch, Esnault, and Kerz.