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*Hecke correspondences and Kodaira-Spencer isomorphisms on Hilbert modular varieties*

Kodaira-Spencer isomorphisms on classical modular curves relate differentials on the curve to those on the universal elliptic curve over it. I'll present a generalization that describes dualizing sheaves of integral models of Hilbert modular varieties with Iwahori level at  $p$ . I'll also describe properties of the associated degeneracy maps to prime-to- $p$  level, including a relative cohomological vanishing result, with applications to the construction and properties of Hecke operators at  $p$ , mod  $p$  Galois representations, and integral models of Hilbert modular varieties.