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\textit{p}-arithmetic and completed cohomology of quaternionic Shimura varieties

In this report on joint work with Samit Dasgupta, I will describe a relationship between classes in the cohomology of \textit{p}-arithmetic groups and intertwining operators between smooth or \textit{p}-adic representations of $GL_2(F_p)$, $F$ a totally real field, and classical or completed cohomology groups of \textit{p}-towers of quaternionic Shimura varieties over $F$. This relationship can be used generalize some results of Breuil and Emerton concerning $L$-invariants and \textit{p}-adic $L$-functions to the setting of Hilbert modular forms.