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p-adic automorphic forms for GL_2

There are (at least) three natural spaces of p-adic automorphic forms for $\mathrm{GL}_2/\mathbb{Q}$: Katz-Serre p-adic modular forms (and their perfected variant), Serre's quaternionic forms, and completed cohomology. Away from p all three have the same completed Hecke algebra, while at p completed cohomology admits an action of $\mathrm{GL}_2(\mathbb{Q}_p)$ and the other two admit actions of closely related p-adic groups. For p-adic modular forms and completed cohomology, the representations of these p-adic groups appearing in a fixed eigensystem are well-understood (by the q-expansion principle and Emerton's local-global compatibility, respectively), while the structure in the quaternionic case remains more mysterious. In this talk, we explain how Pan's recent results on the ubiquity of overconvergent modular forms can be used to extract some information about this structure.