p-adic interpolation of modular forms of infinite slope

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The absolute Galois group of the rational numbers encodes the structure of all extensions of $\mathbb{Q}$ generated by solutions of polynomial equations. One way to better understand this complicated group is to study its p-adic representations, many of which can be produced starting with a modular form. Identifying modular forms with points of a p-adic variety allows one to both produce more Galois representations by interpolation, and study them using geometric tools. Nowadays we know how to p-adically interpolate forms that are of finite slope, meaning that they are not in the kernel of a certain Hecke operator. It is an open question whether one can do the same for forms of infinite slope: I will present some progress towards proving that in this setting interpolation is only possible for some exceptional forms.