Title: Semistable reduction for overconvergent F-isocrystals

Abstract:

Since Berthelot introduced a p-adic Weil cohomology (rigid cohomology), it has been an important problem to construct a good category of coefficient objects in Berthelot's theory. One natural class of objects is the overconvergent F-isocrystals; these are not enough (they correspond to lisse rather than constructible l-adic sheaves) but it has been shown by Caro and Tsuzuki that one can construct a good category of coefficients if one can show the following ("semistable reduction"): any overconvergent F-isocrystal on an open variety can be extended to logarithmic isocrystals on a compactification after pullback by an alteration. We explain our recent proof of this statement using a local argument in the sense of valuation theory, and a somewhat novel classification of valuations in terms of their "corank". If time permits, I may also mention a related conjecture (of Sabbah) and theorem (of Mochizuki) concerning integrable connections on complex varieties.