BOSTON UNIVERSITY NUMBER THEORY SEMINAR

Comparing obstructions to local-global principles for rational points over semiglobal fields

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Monday, March 4 at 4:15 pm
111 Cummington Mall, MCS B21
Tea and cookies in MCS B21 (NOTE CHANGE!) at 4:00 pm

Abstract: Let K be a complete discretely valued field, let F be the function field of a curve over K, and let Z be a variety over F. When the existence of rational points on Z over a set of local field extensions of F implies the existence of rational points on Z over F, we say a local-global principle holds for Z.

In this talk, we will compare local-global principles, and obstructions to such principles, for two choices of local field extensions of F. On the one hand we consider completions F_v at valuations of F, and on the other hand we consider fields F_P which are the fraction fields of completed local rings at points on the special fibre of a regular model of F.

We show that if a local-global principle with respect to valuations holds, then so does a local-global principle with respect to points, for all models of F. Conversely, we prove that there exists a suitable model of F such that if a local-global principle with respect to points holds for this model, then so does a local-global principle with respect to valuations.

This is joint work with David Harbater, Julia Hartmann, and Florian Pop.