

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

# Local-to-Global Extensions for Wildly Ramified Covers of Curves

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Monday, April 30 at 4:15 pm  
111 Cummington Mall, MCS B21  
Tea and cookies in MCS 144 at 4:00 pm

**Abstract:** Given a Galois cover of curves  $X \rightarrow Y$  with Galois group  $G$  which is totally ramified at a point  $x$  and unramified elsewhere, restriction to the punctured formal neighborhood of  $x$  induces a Galois extension of Laurent series rings  $k((u))/k((t))$ . If we fix a base curve  $Y$ , we can ask when a Galois extension of Laurent series rings comes from a global cover of  $Y$  in this way. Harbater proved that over a separably closed field, every Laurent series extension comes from a global cover for any base curve if  $G$  is a  $p$ -group, and he gave a condition for the uniqueness of such an extension. Using a generalization of Artin–Schreier theory to non-abelian  $p$ -groups, we characterize the curves  $Y$  for which this extension property holds and for which it is unique up to isomorphism, but over a more general ground field.