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Julia Hartmann* (hartmann@math.upenn.edu), University of Pennsylvania - Math Department, David Rittenhouse Lab., 209 South 33rd Street, Philadelphia, PA 19104. *Local p-adic differential modules*. Preliminary report.

Differential Galois theory is the algebraic theory of linear differential equations. There is an analogue of a splitting field, and the differential Galois group is the group of differential automorphisms of this extension. A central question is the so-called Inverse Problem: Which groups can occur as the differential Galois group of a differential equation. In this talk, we address the question in the local p-adic case, i.e., over fields of p-adic Laurent series. (Received February 21, 2006)