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Meghan Anderson* (manders@math.berkeley.edu), 2545 Hillegass Ave, Berkeley, CA 94704.

Tannakian Categories and Valuation Rings.

The theory of rings with a distinguished operator satisfying a twisted Liebnitz rule generalizes the theories of rings with a derivative and those with an endomorphism. Understanding the Galois theory of valuation rings with such an operator should help to unify the Galois theories of difference and differential fields. The Tannakian approach has provided insights into both; however, it does not immediately apply to this mutual generalization. We'll talk about why not, what has been proved, and how model theoretic techniques might lead to further results. (Received August 19, 2008)