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**Carlos E Arreche\*** ([carreche@gc.cuny.edu](mailto:carreche@gc.cuny.edu)), The Graduate Center, Mathematics Department, 365 Fifth Ave., Room 4208, New York, NY 10016. *A Picard-Vessiot topology for differential schemes*. Preliminary report.

We present a new Grothendieck topology for differential schemes  $X$ , called the Picard-Vessiot topology, in which every  $\mathcal{O}_X$ -coherent module with connection is locally trivial (i.e., generated by horizontal sections). The main examples of differential schemes are smooth algebraic varieties, and prime spectra of differential rings. We will discuss analogies (and contrasts) with the étale topology, as well as potential applications of the Picard-Vessiot topology to problems in algebraic geometry and differential algebra. (Received February 06, 2014)