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Raymond T Hoobler* (rhoobler@ccny.cuny.edu). *Cohomology of Differential Schemes*. Preliminary report.

We complete the work of Kovacic and others by defining and establishing the basic properties of DiffSpec and differential schemes. We then introduce the Δ -flat topology and show that it agrees with Kolchin's constrained cohomology for a Δ field K . We finish by explaining and generalizing Kolchin's result that $H^*(K_{cnstrd}, \Delta G) = H^*(K_{Gal}, G)$ for a Δ field K and an ordinary linear algebraic group G where ΔG is the differential group scheme obtained by adding the differential operators Δ to G . (Received September 17, 2011)