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**Eric Rosen\*** ([rosen@math.mit.edu](mailto:rosen@math.mit.edu)), Department of Mathematics, 2-242, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, MA 02139. *A differential Chevalley theorem.* Preliminary report.

We prove a differential analog of a theorem of Chevalley on extending homomorphisms for rings with commuting derivations, generalizing a theorem of Kac. As a corollary, we establish that, under suitable hypotheses, the image of a differential scheme under a finite morphism is a constructible set. We also obtain a new algebraic characterization of differentially closed fields. We show that related results hold for differentially closed fields that are saturated, in the sense of model theory. (Received August 15, 2008)