1056-12-429 **V Ravi Srinivasan*** (`ravisri@rutgers.edu`), 101 Warren Street, Smith Hall 207, Newark, NJ 07102. *Iterated Antiderivative Extensions.* Preliminary report.

Let F be a differential field with an algebraically closed field of constants and let E be a differential field extension of F with no new constants. We say that E is an *Iterated Antiderivative Extension* of F, abbreviated *IAE*, if there is a tower of differential fields $F = F_0 \subset F_1 \subset \cdots \subset F_n = E$ such that for each $i = 1, 2, \cdots, n$, $F_i = F_{i-1}(\mathbf{x}_i)$ and $\mathbf{x}_i \in E$ is an antiderivative of F_{i-1}. In this talk, we will show that if E is an *IAE* of F and K is a differential subfield of E such that $K \supseteq F$ then K is an *IAE* of F as well. (Received September 06, 2009)