

Meeting: 1006, Lubbock, Texas, SS 3A, Special Session on Classical and Differential Galois Theory

1006-12-181 **Andy R Magid***, Andy Magid, Department of Mathematics, University of Oklahoma, Norman, OK 73019. *Iterated Picard–Vessiot extensions*. Preliminary report.

The Picard–Vessiot closure F_1 of a differential field $F = F_0$ is an extension without new constants in which every monic linear homogeneous differential equation over F has a full set of solutions, and is minimal with respect to these properties. Picard–Vessiot closures may have proper Picard–Vessiot extensions, which leads to a tower $\cdots F_i \subset F_{i+1} \cdots$ of Picard–Vessiot closures, and their union F_∞ . Although F_∞ is not, in general, a(n) (infinite) Picard–Vessiot extension of F , its differential automorphism group may be used to construct a Galois correspondence for its differential subfields. This we do, and show its application to extensions embeddable in $F_\infty \supset F$. Among the latter are those generated by solutions of differential equations whose coefficients are solutions of differential equations whose coefficients are solutions of differential equations, . . . (Received February 14, 2005)