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Wade Hindes* (whindes@gc.cuny.edu) and **Rafe Jones**. *Riccati equations and polynomial dynamics over function fields.*

Given $d \geq 2$, Odoni conjectured that there is a polynomial $\phi(x) \in \mathbb{Z}[x]$ whose arboreal Galois representation is surjective. By adapting a method of Looer on the Galois theory of iterated trinomials, we prove some cases of a generalization of this conjecture obtained by replacing \mathbb{Z} with $\mathbb{F}_p[t]$ or $\mathbb{Q}[t]$. Along the way, we establish a fairly general primitive prime divisor theorem for polynomial orbits over function fields (in any characteristic). Interestingly, the main step in our proof is to rule out “Riccati differential equations” in backwards orbits. (Received August 16, 2017)