Building superintegrable Lotka–Volterra systems using Darboux Polynomials
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In this talk we show how to construct large classes of Lotka–Volterra ODEs in $\mathbb{R}^n$ with $n1$ first integrals. The building blocks we use will be linear Darboux Polynomials of the ODE. The talk will also feature a novel application of (free) trees to Lotka-Volterra systems. The trees here represent the set of Darboux polynomials of the ODEs. In the talk these concepts will be defined, and the procedure explained.