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Sam Evens* (sevens@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556. *The Gelfand-Zeitlin system for $gl(n)$ and $so(n)$.*

I will give an overview of recent joint work with Mark Colarusso on the Gelfand-Zeitlin system for the Lie algebras $\mathfrak{g}=\mathfrak{gl}(n,\mathbb{C})$ and $\mathfrak{g}=\mathfrak{so}(n,\mathbb{C})$ introduced by Kostant and Wallach. This is a completely integrable system defined by the maximal Poisson commutative family given by invariants for \mathfrak{g} together with invariants for all smaller subalgebras of the same type. A point in \mathfrak{g} is called strongly regular if this collection of invariants have linearly independent differentials, and flows through these points are flows of maximal dimension. The case of $\mathfrak{gl}(n)$ is partly accessible via linear algebra, but we explain how to use structural results from algebraic groups (due to Knop, Luna, and others) in order to better understand the situation for $\mathfrak{gl}(n)$, but also to extend many known results for $\mathfrak{gl}(n)$ to the orthogonal case. (Received August 27, 2016)