1067-22-1243   **Mark Colarusso*** (`mark.colarusso.1@ulaval.ca`), Pavillon Alexandre-Vachon, 1045 Av. de la Medecine, Québec, QC G1V 0A6, Canada, and **Sam Evens** (`sevens@nd.edu`), 255 Hurley Hall, University of Notre Dame, Notre Dame, IN 46556-4618. *The geometry of Gelfand-Zeitlin fibres.* Preliminary report.

In 2006, Kostant and Wallach constructed an integrable system on the $n \times n$ complex matrices $\mathfrak{gl}(n, \mathbb{C})$ using a classical analogue of the Gelfand-Zeitlin subalgebra of the universal enveloping algebra. This integrable system can be viewed as a complexified version of the one studied by Guillemin and Sternberg on the $n \times n$ Hermitian matrices, which is related to the classical Gelfand-Zeitlin basis via geometric quantization.

In this talk, we discuss joint work with Sam Evens in which we develop a geometric description of the fibres of the moment map for the complexified Gelfand-Zeitlin system studied by Kostant and Wallach. In particular, we show that the generic components of the nilfibre correspond to certain Borel subalgebras constructed using the theory of $K = GL(n-1, \mathbb{C}) \times GL(1, \mathbb{C})$ orbits on the flag variety. We discuss our current work in describing all generic moment map fibres using an analogue of the Grothendieck resolution adapted to study the Gelfand-Zeitlin system. (Received September 20, 2010)