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Mark Colarusso* (colarusso@uwm.edu). *Geometry of Complex Gelfand-Zeitlin Systems*
II. Preliminary report.

We explain in more detail our results concerning the geometry of the Gelfand-Zeitlin (GZ) integrable systems outlined in the talk “Geometry of the Complex Gelfand-Zeitlin Systems I” given by S. Evens. We describe how the nilfibre of the partial Kostant-Wallach map can be understood using the theory of orbits of a symmetric subgroup on the flag variety. Using this description of the nilfibre along with the Luna slice theorem, we obtain a simple description of partial Kostant-Wallach map fibres and the so-called partially strongly regular set. We use these results to understand the geometry of the full strongly regular set and construct components of Kostant-Wallach map fibres over the strongly regular set. If time permits, we will briefly discuss our approach to understanding the geometry of the GZ systems away from the strongly regular set using the theory of flat deformations of schemes. (Received August 30, 2016)