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Changzheng Qu* (czqu@nwu.edu.cn), Department of Mathematics, Northwest University, Xi'an, 710069, Peoples Rep of China. *Integrable systems and invariant geometrical flows in Klein geometry*. Preliminary report.

In this talk, we discuss the relationship between invariant geometrical flows and integrable systems in Klein geometries. It is shown that a number of integrable systems are closely related to the motions of curves or surfaces in Klein geometries. These local and nonlocal dynamics conserve global geometric quantities of curves such as perimeter and enclosed area. Motions of curves and surfaces in Klein geometries corresponding to the solutions of the integrable systems are also discussed. Based on the invariants and invariant curve motions in certain geometries, new geometrical explanations to the Miura transformation relating to KdV and mKdV equations and the Cole-Hopf transformation relating to linear PDEs and nonlinear PDEs are provided. (Received September 20, 2007)