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Ron K Perline* (rperline@math.drexel.edu), **Sergei Tabachnikov**, **Mark Levi** and **Gil Bor**. *Bicycle Mathematics*. Preliminary report.

We discuss the "Bicycle Transform", an elementary transformation on curves which can be interpreted as a special case of Backlund transformations of curves related to the spectral problem associated to the (integrable) cubic NLS equation. We indicate its relation to the Floating Body Problem, as well as the Auerbach problem (essentially asking which curves are bicycle transforms of themselves). This is joint work with S. Tabachnikov, G. Bor, and M. Levi. (Received January 18, 2017)