

Direct connections on jet groupoids

Gauge fields are the local expression of a principal connection on a principal bundle, and therefore encode the infinitesimal data of a parallel transport between the fibres along curves on the base manifold. One may wonder if there is a field interpretation for parallel transport. Reading principal connections as infinitesimal connections on the associated Atiyah Lie algebroid, this question can be answered by usual integration and gives rise to direct connections on Lie groupoids [A. Kock 1989, N. Teleman 2004, J. Kubarski and N. Teleman 2006]. In this talk we review the basic facts about direct connections on Lie groupoids, together with some interesting examples due to Teleman, and study their jet prolongations on jet groupoids. The talk is based on a work in progress with S. Azzali, Y. Boutaib and S. Paycha.

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