1078-58-162   **M. Pflaum** and **H. Posthuma** (`xtang@math.wustl.edu`), 63130, and **X. Tang***
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63130. *The localized Longitudinal index theorem for Lie groupoids and the Van Est map.*

We define the "localized index" of longitudinal elliptic operators on Lie groupoids associated to Lie algebroid cohomology classes. We derive a topological expression for these numbers using the algebraic index theorem for Poisson manifolds on the dual of the Lie algebroid. Underlying the definition and computation of the localized index, is an action of the Hopf algebroid of jets around the unit space, and the characteristic map it induces on Lie algebroid cohomology. This map can be globalized to differentiable groupoid cohomology, giving a definition as well as a computation of the "global index". The correspondence between the "global" and "localized" index is given by the van Est map for Lie groupoids. (Received December 05, 2011)