

# Multi-sections of jet spaces

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The homotopy principle is a family of techniques, heuristics, and strategies whose goal is answering the following question: What is the homotopy type of the space of solutions of a given partial differential relation (PDR)?

The answer to this is, of course, highly dependent of the particular PDR. However, when the PDR is very underdetermined, the problem becomes actually tractable and topological techniques come into play. Interestingly, many of the differential conditions defining geometric structures are of this form.

In this talk I will introduce all these notions. My goal will be to prove the following result: if a PDR is open, the space of generalised solutions (i.e. solutions with simple singularities) is contractible. This is joint work with L.E. Toussaint.