Complex Dirac structures: invariants and local structure

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Abstract:

Complex Dirac structures are Dirac structures in the complexification of the generalized tangent bundle. Regular presymplectic foliations, transverse holomorphic structures, CR-related geometries and generalized complex structures are examples of complex Dirac structures. We introduce two invariants, the order and the (normalized) type. For constant order, we prove the existence of an underlying real Dirac structure, which generalizes the Poisson structure associated to a generalized complex structure. For constant real index and order, we prove a splitting theorem for complex Dirac structures, which provides a local description in terms of a presymplectic leaf and a small transversal. This is a joint work with R. Rubio, arXiv:2105.05265.