Compatible Structures on Lie Algebroids and Monge-Ampère Operators

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Résumé en anglais: We study pairs of structures, such as the Poisson-Nijenhuis structures, on the tangent bundle of a manifold or, more generally, on a Lie algebroid or a Courant algebroid. These composite structures are defined by two of the following, a closed 2-form, a Poisson bivector or a Nijenhuis tensor, with suitable compatibility assumptions. We establish the relationships between PN-, Π Ω- and Ω N-structures. We then show that the non-degenerate Monge-Ampère structures on 2-dimensional manifolds satisfying an integrability condition provide numerous examples of such structures, while in the case of 3-dimensional manifolds, such Monge-Ampère operators give rise to generalized complex structures or generalized product structures on the cotangent bundle of the manifold.

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[5] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=527
[6] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6160
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[9] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6163
[10] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6164
[11] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6165
[12] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=325
[13] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=534
[14] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6166
[15] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6167
[16] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6168
[17] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=539
[18] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=6169
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