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Compatible Poisson tensors related to bundles of Lie algebras. (English) [Zbl 1115.53058](#)

Mladenov, Ivaïlo (ed.) et al., Proceedings of the 7th international conference on geometry, integrability and quantization, Sts. Constantine and Elena, Bulgaria, June 2–10, 2005. Sofia: Bulgarian Academy of Sciences (ISBN 954-8495-30-9/pbk). 307-319 (2006).

In this paper the author outlines some applications of the theory of bundles of Lie algebras related to infinite dimensional integrable systems. In particular one investigates some recent results about the Poisson structures arising on the coalgebra of a given Lie algebra on which there is a structure of a bundle of Lie algebras. These tensors have applications in the study of the Hamiltonian structures of various integrable non linear models, among them the $O(3)$ -chiral field system and Landau-Lefshitz equation. As can be seen, these developpements make even more interesting than before the question about the equivalence between different bundles of the Lax pairs – the elliptic one (usually considered) and the polynomial one, based on the new alternative Lie algebra structures.

For the entire collection see [\[Zbl 1089.53004\]](#).

Reviewer: [Béchir Dali \(Bizerte\)](#)

MSC:

- [53D17](#) Poisson manifolds; Poisson groupoids and algebroids
- [37K05](#) Hamiltonian structures, symmetries, variational principles, conservation laws (MSC2010)
- [35Q58](#) Other completely integrable PDE (MSC2000)

Keywords:

[Poisson manifolds](#); [Hamiltonian structures](#); [other completely integrable equation](#)