A new method to quantify Integrable Systems

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We discuss a new method of quantifying classical Integrable Systems via the example of the Toda hierarchy. We first lift these systems to a free associative setting and look for the right quantifying ideals in these noncommutative algebras. We will see that in the case of the Toda hierarchy we first retrieve a well-known deformation quantization coming from R matrices, but that we also find a new quantum integrable system which so far does not fit in the deformation quantization picture. This is a joint work with A. Mikhailov (Leeds) and J.P. Wang (Kent, UK).

References

[1] Quantisations of the Volterra hierarchy, Letters in Mathematical Physics, 112, 94 (2022)

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