THE UNIVERSITY  OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

GEOMETRY SEMINAR

Tannaka-Krein duality and quantization of Poisson structures defined by *r*-matrices

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Abstract

By Kontsevich's formality theorem, any Poisson variety (P, π) admits a formal deformation quantization. But in the presence of a Poisson action by a Lie bialgebra $(\mathfrak{g}, \delta)$, it is not known if (P, π) can be quantized as an associative algebra object in the appropriate monoidal category. This talk is about a special kind of Poisson structures where this "equivariant" quantization problem always has a solution, namely when π is defined by a quasitriangular structure of $(\mathfrak{g}, \delta)$. Numerous varieties important in geometric representation theory, such as Bott-Samelson varieties and (products) of flag varieties, support holomorphic Poisson structures of this kind. If $(\mathfrak{g}, \delta)$ is quasitriangular, the category $\mathcal{C}$ of representations of the corresponding quantum group is braided, and I will explain how the Tannaka-Krein duality for bialgebras implies that Poisson structures defined by a quasitriangular structure of $(\mathfrak{g}, \delta)$ can be quantized as *commutative* associative algebra objects in $\mathcal{C}$.

Date:	October 10, 2017 (Tuesday)
Time:	4:00 – 5:00pm
Venue:	Room 210, Run Run Shaw Bldg., HKU

All are welcome