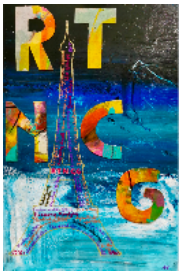

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On the crystallisation of semisimple Lie groups

mardi 25 février 2025 14:30 (1 heure)

In 1990, Kashiwara and Lusztig independently discovered the theory of crystal bases for complex semisimple Lie algebras. This theory says that if we deform the universal enveloping algebra by the Drinfled-Jimbo quantisation procedure, and let the quantisation parameter go to infinity, then the structure theory of the finite-dimensional representations becomes extremely simple. This allows an easy understanding of basic problems like tensor decompositions and branching rules. In this talk, I will explain a dual phenomenon, namely the crystallisation of the algebra of functions on a compact Lie group.
By the quantum duality principle, this has implications for unitary representations of complex semisimple Lie groups. If time permits, we will discuss the case of
$operatornameSL(2,\mathbb{C})$.

(Joint work with Marco Matassa.)

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