

CRYSTALLIZATION OF FUNCTION ALGEBRAS ON SEMISIMPLE GROUPS

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The structure theory of the finite dimensional representations of a quantized enveloping algebra undergoes a massive simplification when the deformation parameter q goes to 0 . This is the fundamental observation in the theory of crystal bases of Kashiwara and Lusztig. One might ask if there is a similar simplification of the Pontrjagin dual, meaning a crystallisation of the quantized algebra of functions on a compact semisimple Lie group. Kashiwara proposed a crystallised function algebra, but it is not $*$ -stable, so doesn't apply to Soibelman's $*$ -representations, for instance. Instead, the crystal limit of the $*$ -algebras is a combinatorial $*$ -algebra associated to symbolic dynamics. I will describe this crystal limit, as well as its analogue for the noncompact group $SL(2, \mathbb{C})$.

(Joint work with Marco Matassa and Aidan Sims.)