Department of Mathematics

University of Houston

Analysis Seminar

Thursday, November 10, 2016

11:00-12:00 – Room 646 PGH

Speaker: Sang-gyun Youn (Seoul National University)

Title: A Littlewood type theorem on compact quantum groups

Abstract: In 1926, Littlewood proved an interesting property of random Fourier series on circle $\mathbb{T}$. He showed that, for a fixed function $f \sim \sum_{n\in\mathbb{Z}} \widehat{f}(n)z^n \in L^1(\mathbb{T})$,

$$f_\epsilon := \sum_{n\in\mathbb{Z}} \epsilon_n \widehat{f}(n) z^n \in L^1(\mathbb{T}) \text{ for all } \epsilon = (\epsilon_n)_{n\in\mathbb{Z}} \text{ with } |\epsilon_n| = 1, \forall n \in \mathbb{Z}$$

if and only if $f \in L^2(\mathbb{T})$.
Helgason extended this property to general compact groups in 1957 and we recently investigated it in the setting of compact quantum groups.
In this seminar, I will talk about the concept of Fourier analysis on compact quantum groups and present our main results on free quantum groups (e.g. O_N^+ , U_N^+ and S_N^+) and the quantum $SU(2)$ group, $SU_q(2)$. Also, complete representability of convolution algebras $L^1(\mathbb{G})$ of quantum groups $\mathbb{G}$ as an operator algebra will be addressed.