

**Speaker:** Stephen Kudla

**Title:** Theta integrals and generalized error functions

**Abstract:** Alexandrov, Banerjee, Manschot and Pioline [ABMP] constructed generalizations of Zwegers theta functions for lattices of signature  $(n - 2, 2)$ . They also suggested a generalization to the case of arbitrary signature  $(n - q, q)$  and this case was subsequently proved by Nazaroglu. Their functions, which depend on certain collections  $\mathcal{C}$  of negative vectors, are obtained by ‘completing’ a non-modular holomorphic generating series by means of a non-holomorphic theta type series involving generalized error functions.

In joint work with Jens Funke, we show that their completed modular series arises as integrals of the  $q$ -form valued theta functions, defined in old joint work of the author and John Millson, over a certain singular  $q$ -cube determined by the data  $\mathcal{C}$ . This gives an alternative construction of such series and a conceptual basis for their modularity. I will discuss the simplicial case and a curious ‘convexity’ problem for Grassmannians that arises in this context.