

1106-46-364

Chunlan Jiang, Zhengwei Liu* (zhengwei.liu@vanderbilt.edu) and **Jinsong Wu.**

Noncommutative uncertainty principles.

The classical uncertainty principles deal with functions on abelian groups. In this paper, we discuss the uncertainty principles for finite index subfactors which include the cases for finite groups and finite dimensional Kac algebras. We prove the Hausdorff-Young inequality, Young's inequality, the Hirschman-Beckner uncertainty principle and the Donoho-Stark uncertainty principle. We characterize the minimizers of the uncertainty principles. We also prove that the minimizer is uniquely determined by the supports of itself and its Fourier transform. The proofs take the advantage of the analytic and the categorial perspectives of subfactor planar algebras. Our method to prove the uncertainty principles also works for more general cases, such as Popa's λ -lattices, modular tensor categories etc. (Received August 25, 2014)