PING WONG NG, University of Louisiana, Mathematics Department, University of Louisiana, Lafayette, Louisiana 70504-1010, USA

Projection Decomposition in Operator Algebras

Motivated by the work of Dykema, Freeman, Kornelson, Larson, Ordower and Weber in frame theory, we study when a positive operator in a C^*-algebra can be written as a (possibly infinite) sum of (not necessarily pairwise orthogonal) projections.

For type I and type III von Neumann factors (with separable predual), we have complete characterizations. (Here, the sums of projections converge in the strong operator topology.) If B is a σ-unital simple stable purely infinite C^*-algebra then for the multiplier algebra $M(B)$ of B, we have a complete characterization. (Here, the sums of projections converge in the strict topology.) For other cases, we have partial results.

This is joint work with Kaftal and Zhang.