

1014-81-320

M. Beth Ruskai* (Marybeth.Ruskai@tufts.edu). *The relation between frames and POVM's in quantum information theory.* Preliminary report.

In quantum information theory a von Neumann measurement is replaced by a more general concept called a positive operator valued measurement (POVM), which is essentially a partition of unity in terms of positive semi-definite operators. POVM's formed from equally weighted rank one operators define a tight frame, and any frame defines a POVM. Two special classes about which many open questions remain are known as symmetric informationally complete (SIC) bases and mutually unbiased bases.

This will be a tutorial lecture on the role of POVM's in quantum information with emphasis on open questions to which experts on frames may be able to contribute. (Received September 09, 2005)