1145-47-579 **Arthur J Parzygnat*** (arthur.parzygnat@uconn.edu), 341 Mansfield Road U-1009, Storrs, CT 06269-1009, and **Benjamin P Russo**. *Non-commutative disintegration.*

The notion of a disintegration of positive measures can be formulated diagrammatically in a category of transition kernels. Combining this with the functor relating transition kernels and positive operators, a notion of non-commutative disintegration can be made for certain C*-algebras and von Neumann algebras in terms of positive operators. While a certain degree of uniqueness holds as in the classical measure-theoretic case, existence of such disintegrations is not guaranteed even on finite-dimensional matrix algebras. Such disintegrations are closely related to reversible processes in quantum information theory and conditional probabilities in non-commutative probability. This is joint work with Benjamin P. Russo (Farmingdale State College SUNY). (Received September 10, 2018)