

**Zheng Joyce Wang**

Indiana University, USA

## **Data fusion using Hilbert space multi-dimensional models**

(joint work with Jerome Busemeyer)

General procedures for constructing, estimating, and testing Hilbert space multi-dimensional (HSM) models, built from quantum probability theory, are presented. HSM models can be applied to collections of  $K$  different contingency tables obtained from a set of  $p$  variables that are measured under different contexts. A context is defined by the measurement of a subset of the  $p$  variables that are used to form a table. HSM models provide a representation of the collection of  $K$  tables in a low dimensional vector space, even when no single joint probability distribution across the  $p$  variables exists. HSM models produce parameter estimates that provide a simple and informative interpretation of the complex collection of tables.