ROBIN COCKETT, University of Calgary
Moore-Penrose Inverses in Dagger Categories

The notion of a Moore-Penrose inverse (M-P inverse) was introduced by Moore in 1920 and rediscovered by Penrose in 1955. The M-P inverse of a complex matrix is a special type of inverse which is unique, always exists, and can be computed using singular value decomposition. In a series of papers in the 1980s, Puystjens and Robinson studied M-P inverses more abstractly in the context of dagger categories. Despite the fact that dagger categories are now a fundamental notion in categorical quantum mechanics, the notion of a M-P inverse has not (to our knowledge) been revisited since their work. Thus, the purpose of this presentation is to recall and renew the study of M-P inverses in dagger categories.

(Joint work with Jean-Simon Lemay)