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Completely Positive Linear Maps

This is a survey talk on the structure of completely positive linear maps, which serve as the natural morphisms in the category of matrix algebras (or operator algebras). It has been well known (for more than 30 years in electrical circuit theory), that completely positive linear maps, rather than positive linear maps, are useful connections for n-port networks. Incredibly, many new features of quantum operations (in recent quantum computing theory) turn out to be old and new structure problems of completely positive linear maps.