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**Valence bond states in Quantum Information Theory** FRANK VERSTRAETE, Caltech, J.I. CIRAC, Max Planck Institute fur Quantenoptik — Many interesting states in the context of quantum information theory have a very simple parameterization in terms of valence bond states. These include the GHZ-states, cluster states, stabilizer states and error correcting codes, Kitaev's topological toric codes, ... The basic advantage of this description is that it is a local and makes the nice properties of these states very apparent. We will discuss these properties, and elucidate the relevance of valence bond states in the context of the renormalization group.

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