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Topological and spin-liquid phases in strongly correlated iridates

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Recently, the emergence of topological phases in interacting electron systems such as topological insulators and spin liquid phases, has been a subject of intensive research. In particular, much attention has been given to 5d transition metal oxides where the strong spin-orbit coupling and intermediate strength of the electron interaction provide an ideal playground for the emergence of a number of interesting topological phases. We summarize recent theoretical efforts in this direction in the context of Iridates, or iridium oxides. We make connections to the existing and future experiments on a variety of iridates materials including pyrochlore iridates, honeycomb-lattice iridates, and hyperkagome-lattice systems.