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Dark Excitons in Gapped Chiral Fermion Systems\textsuperscript{1} XIAOOU ZHANG, WENYU SHAN, DI XIAO, Carnegie Mellon Univ — The radiative lifetime of excitons puts an intrinsic limit on the operation speed of optoelectronic devices. In this talk, we propose a new mechanism to realize dark exciton state based on gapped 2D chiral fermions. We further show that a gate voltage can be used to tune the lowest exciton state between dark and bright. This provides a pathway to experimental control of optical transitions.

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