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**Floquet High Chern Insulators in Periodically Driven Chirally Stacked Multilayer Graphene** CHENG-CHENG LIU, SI LI, YUGUI YAO, School of Physics, Beijing Institute of Technology, Beijing — Chirally stacked N-layer graphene is a semimetal with  $p^N$  band-touching at two nonequivalent corners in its Brillouin zone. We predict that an off-resonant circularly polarized light (CPL) drives chirally stacked N-layer graphene into a Floquet Chern Insulator (FCI), a.k.a. quantum anomalous Hall insulator, with tunable high Chern number  $C_F = +/-N$  and large gaps. A topological phase transition between such a FCI and a valley Hall (VH) insulator with high valley Chern number  $C_v = +/-N$  induced by a voltage gate can be engineered by the parameters of the CPL and voltage gate. We propose a topological domain wall between the FCI and VH phases, along which perfectly valley-polarized N-channel edge states propagate unidirectionally without backscattering.

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