

Electrons

Fermion partons

$$S = f_\alpha^\dagger \frac{\sigma_{\alpha\beta}}{2} f_\beta$$

Fermi liquid

Bose metal
Spinon Fermi surface

BCS
superconductor

\mathbb{Z}_2 spin liquid

Chern insulator
(Class A)

Chiral spin liquid

$p_x + ip_y$ superfluid
(Class D)

ITO - spin liquid with
non-Abelian Ising anyons
(Kitaev honeycomb)

Semi-metals
with gapless
Dirac spectrum
(graphene)

Gapless spin liquid

Square lattice:
 $N_f = 2$ SU(2) QCD
or $SO(5)_1$ WZW model

Triangular lattice:

$N_f = 4$ QED

Complex SYK
non-Fermi liquid

SY spin liquid