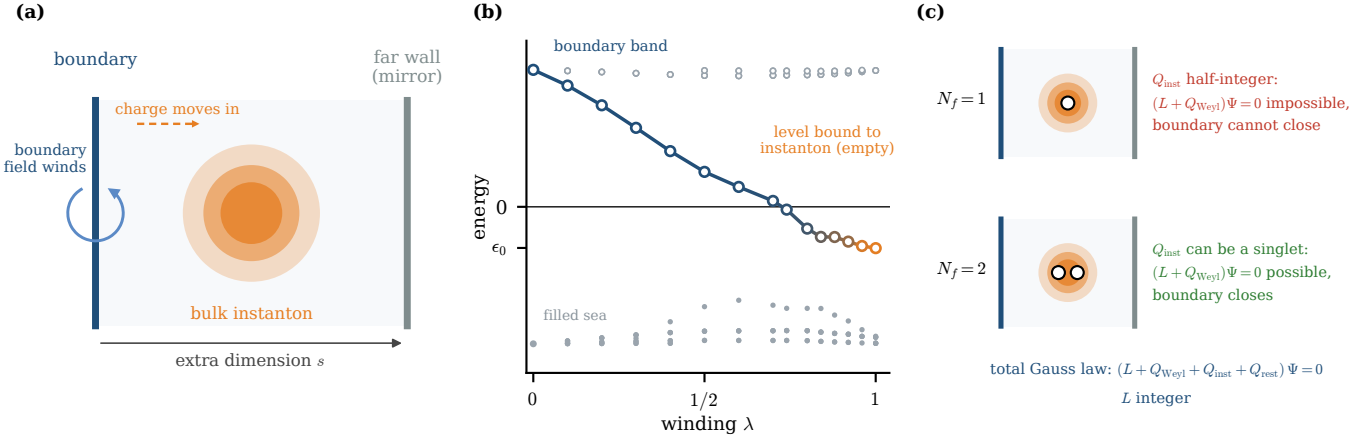

(a)
boundary
far wall
(mirror)
charge moves in
boundary
field winds
bulk instanton
extra dimension s
(b)
boundary band
level bound to
instanton (empty)
energy
0
ϵ_0
filled sea
0
1/2
1
winding λ
(c)
$N_f = 1$
$Q_{\rm inst}$ half-integer:
$(L + Q_{\rm Weyl})\Psi = 0$ impossible,
boundary cannot close
$N_f = 2$
$Q_{\rm inst}$ can be a singlet:
$(L + Q_{\rm Weyl})\Psi = 0$ possible,
boundary closes
total Gauss law: $(L + Q_{\rm Weyl} + Q_{\rm inst} + Q_{\rm rest})\,\Psi = 0$
L integer