

Exercises for Chap. 10

1. Explicitly verify the anomaly matching for SUSY QCD with N colors and F flavors with its dual description for the following global anomalies: $SU(F)^3$, $U(1)SU(F)^2$, $U(1)_R SU(F)^2$, $U(1)^3$, $U(1)$, $U(1)U(1)_R^2$, $U(1)_R$, $U(1)_R^3$, and $U(1)^2U(1)_R$.

2. Check that all the global (including mixed gravitational) anomalies match between SUSY QCD and its dual description in terms of constrained mesons and baryons for $F = N$, at the point in the quantum moduli space where $M = 0$, $B\bar{B} = -\Lambda^{2N}$.

3. When the dual description of SUSY QCD is IR free it has two more global $U(1)$ symmetries than the original UV theory does. Explain why and assign a consistent set of charges to the meson and dual quarks.