

# Yang-Mills/QCD on $R^2 \times T^2$ , adiabatic continuity, and $\eta'$ potential

*Wednesday 24 September 2025 11:00 (1 hour)*

We show that 4d Yang-Mills/QCD can be semi-classically solved on  $R^2 \times T^2$  with nontrivial 't Hooft flux. In this setup, 4d instanton splits into  $N$  center-vortex fractional instantons, and its dilute gas describes qualitative features of 4d confinement vacua via the adiabatic continuity. When we apply this technique to QCD with fundamental quarks, we can learn about the global structure of the  $\eta'$  potential.

**Presenter:** TANIZAKI, Yuya