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Deconfinement Phase Transition in Thermal QCD at Intermediate Coupling from M Theory

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My talk will be based on arXiv:2108.05372,2203.11959. I will explain how we obtain the deconfinement temperature of thermal QCD-like theories at intermediate coupling from $calM$ -theory dual inclusive of $calO(R^4)$ corrections. In this process we found certain novel features such as “UV-IR” mixing, “Flavor Memory” effect and non-renormalization of the deconfinement temperature beyond one-loop in the zero instanton sector. Further I shall explain how the deconfinement temperature of the thermal QCD-like theories will be modified in the presence of rotating Quark Gluon Plasma and what will be the effect of vorticity on the novel features described earlier in the small frequency limit.

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