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Galactic Rotation Curves from Yang-Mills Gravity[1] DANIEL
KATZ, University of Massachusetts Lowell — Yang-Mills Gravity (YMG) is a gauge
field theory based on the T_4 group in flat spacetime. In its macroscopic limit, it
modifies the trajectories of classical objects such that it serves as an alternative to
General Relativity (GR). Since YMG is relatively new and unknown, a brief review
of the general theory is given and a more comprehensive list of references is provided.
In the present work, we find that the Schwarzchild-like solution to YMG supports
a term like αr with constant α. This translates into an r-term in the effective grav-
itational potential of classical objects. We use this modified potential to predict
the shape of the rotation curves of spiral galaxies, and then use data from SDSS to
constrain α, which seems to be a free parameter in YMG.

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