

Higher-order nonlocal thermodynamic theories of gravity

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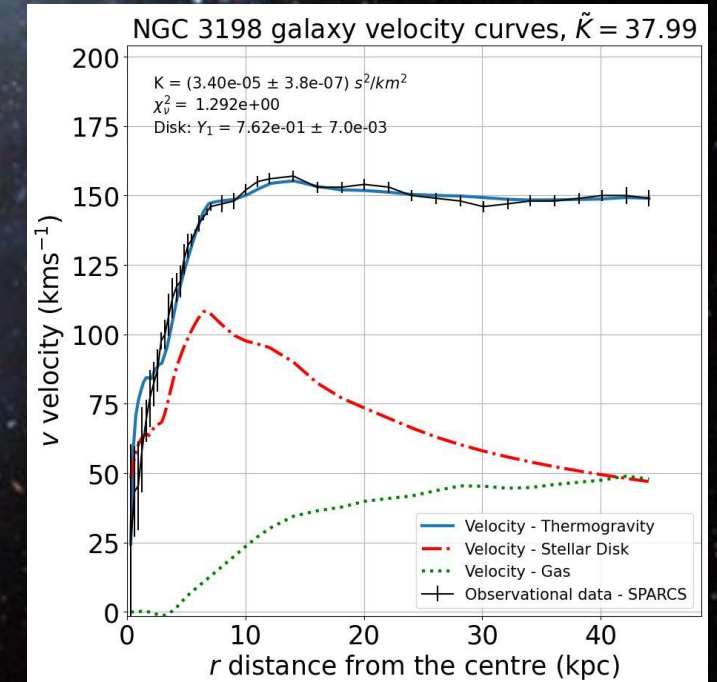
$$u = e - \frac{\varepsilon(\rho, \varphi, \nabla\varphi, \nabla^2\varphi, \nabla^3\varphi)}{\rho}$$

Short-scale
modifications



$E = mc^2$
Self-consistent,
self-coupled gravity

Galactic
dynamics



$$\Delta\varphi = 4\pi G\rho + K(\nabla\varphi)^2$$