



## **Black body force in gravitational scenarios**

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It was shown recently that unusual attractive forces acting on neutral atoms are caused by shifts in the spectrum lines of these atoms, due to incidence of thermal radiation - a consequence of the dynamical Stark effect. That radiation is emitted from black body sources and modified when one considers these objects in some gravitational scenarios. In this work we generalize such a phenomenon to any spherically symmetric source, in the context of General Relativity and even of other theories of gravity, including the quantum ones. Cosmological scenarios also are analyzed. In order to do this, we compute the gravitational modification of both the source temperature and the solid angle subtended by the neutral atom, which are the quantities that play the principal roles in the problem, based on the respective black body force expression valid in the flat spacetime.