R18b Gravitational Field Flux Picture with Generalized Gauss's law of Gravity to Interpret the Rotation of Disk Galaxies

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The velocity-radius plots tend to go flat in the outer plane region of disk-shaped high surface brightness galaxies(hsbg) while rise all the way from center to the edge for low surface brightness galaxies(lsbg). Both the disk hsbg and lsbg violate the conventional Keplerian dynamics. Another observation setting constraints to models of galactic dynamics is the Tully-Fisher Relation(TFR), which states that luminous mass of the galaxy is proportional to its flat rotation velocity to the power of roughly 4. The theory of Modified Newtonian Dynamics, "MOND", sucessfully explains the flat rotation curve and TFR by modifying the Newtonian force law below a critical acceleration, or field. An alternative picture of MOND-type models is proposed here to provide the solution of these problems by a generalization of the Gauss's law of Gravity, along with a picture of the field flux of gravity. It is pointed out first that a flux distribution with a cylindrical symmetry through the side wall of a cylindrical Gaussian surface of the disk galaxies can result in a direct inverse radius dependence and give the flat rotation curve. Next, it is shown that below the critical field, the Stellar Tully-Fisher relation can be proved valid from the condition that the gravitational flux distribution turns into cylindrical from the spherical symmetry. This gravitational flux picture also provides a description in real space for the stucture-dynamics relation of bulged, non-bulged hsbg and lsbg.