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Green Function for the Poisson Equation in a General Case of Astrophysical Interest ARMANDO MEZA GAXIOLA, ANTON LIPOVKA, Universidad de Sonora — This paper suggests an exact solution of the Poisson equation that appears in the calculation of the gravitational potential of spiral galaxies. We use the finite integral transformation technique to find an analytical solution to the problem in cylindrical coordinates. The final solution is presented as an expansion of the functions of the corresponding Sturm-Liouville problem. The green function of the problem is found. Using the density of Miyamoto-Nagai that is used to study disk galaxies; the gravitational potential can be calculated and the rotation curve of our Milky Way can be found.

Armando Meza Gaxiola
Universidad de Sonora

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