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DERIVING STRUCTURAL PARAMETERS OF MILKY WAY GLOBULAR CLUSTERS USING ELLIPSE FITTING

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We utilized the Python library `EllipseModel` to fit 2D spatial distributions of globular cluster stars, examining both their number and surface density on the view plane. Our primary data source was stellar photometry from the Pan-STARRS Catalog DR1 (Chambers et al. 2016), with a limiting magnitude of $g \sim 21$ mag. Our analysis focused on determining structural parameters such as the coordinates of globular cluster center, ellipticity, and positional angle. To address background and foreground contamination, we applied various data filtering techniques. This approach was initially tested on the globular cluster M2. Our ultimate objective is to refine and expand the structural parameters for most of the 157 known globular clusters in the Milky Way listed in Harris (2000).

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References:

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