TWO SIMPLE FORMS OF PHASE DENSITY AND MODELS OF STAR CLUSTERS

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Two versions of the restrictions of the phase density are found and studied:

$$\Psi(\chi, \xi) = [\chi - \lambda\xi - \phi(r)]^{\alpha}\, \psi(\xi)$$

$$\Psi(\chi, \xi) = (1 + p\xi)^{-5/2} f(u)$$

$$u = [x - \lambda\xi - \phi(r)] \cdot (1 + \rho\xi)^{-1}$$

when the integral equation for the phase density is reduced to the Abel equation. r_1, λ and α or p are parameters of models. r_1 is the radius of the model; -X is the energy integral; - a half of the angular momentum integral squared; $\phi(r)$ is the gravitational potential. The functions $\psi(\xi)$ or f(u) are determined as solutions of the Abel equation, the given functions being the space density, $\rho(r)$, or the potential, $\phi(r)$, known from observational data. The observational data have been approximated by two types of models: generalized Schuster models,

$$\rho(r)/\rho(r_o) = [1+(r/r_o)^2]^{-\beta}$$

or two-parametric generalized isochronous models,

$$\phi(r)/\phi_o = \begin{cases} a(b^c + \zeta^c)^{-1/c}, & 0 \leqslant q < 1; \\ [1+(r/r_h)^c]^{-1/c}, & q = 1, \end{cases}$$

where $\zeta(r) = [1 + a^2(r/r_h)^2]^{1/2}$, $q = b/a = b(1 + b^c)^{1/c}$

ρ_o or ϕ_o where r_o or r_h are scale parameters, β or q and c are structure parameters. Details of the report will be published in *Publ. Tartu Astrophys. Obs.* 48, 1980 and in *Astron. Zh. (Moscow)* 58, 1981.

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