



FIG. 5—Continued

number of particles. For $N = 15,000$, the contribution of the CPU time is 34 ms (3%).

Two types of initial conditions have been taken. The first one consists in a non-rotating cylindrical cloud with the same initial conditions as Larson [10] as illustrated in Fig. 4a. (In Figs. 4a and 5a the central hole surrounding the axis is due to the 2D density distribution, because for uniform ρ the 2D density is equal to $2\pi\rho R$, where R is from the axis.) The initial mass density then is

$$\rho(r, z) = 7.8 \times 10^{-18} (1 + (10r/R)^2)^{-1} \text{ g cm}^{-3}, \quad (5.6)$$

where $R = 10^{17}$ cm is the radius of the cloud, so that the initial 2D density distribution is

$$\mu(r, z) = 2\pi\rho(r, z). \quad (5.7)$$