# DOES A ROTATION VELOCITY JUMP GENERATE THE OUTER SPIRAL STRUCTURE?

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We investigate a stability of the gaseous disk in the Milky Way. The rotation curve with smooth two kinks in the Solar vicinity (Fig.1) was adopted in accordance with the observations (Fridman et al., 1994a). Such a gaseous disk is unstable. The instability can generate the four-armed spiral (Fig.2) and four-vortex structure (Fig.3). The method of the analysis is described by Fridman et al., 1994b. The generation mechanism is similar to that described by Glatsel, 1987.

The four-armed spiral is located outside its corotation circle with a radius about 8 kpc. Four vortices can be seen near the corotation radius. For the velocity dispersion of the gaseous clouds 10 km $s^{-1}$, a pitch angle of the spirals is $\sim 20^o$ (Blitz, 1983).

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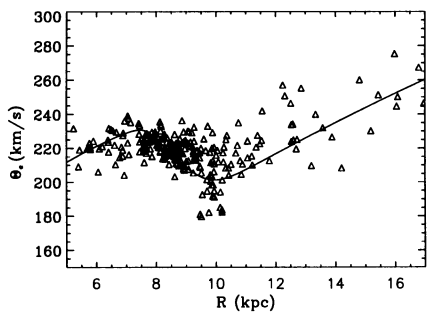


*Figure 1.* Rotation curve. Triangles are observations. The line is used for the simulation.



*L. Blitz and P. Teuben (eds.), Unsolved Problems of the Milky Way,* 505–506.

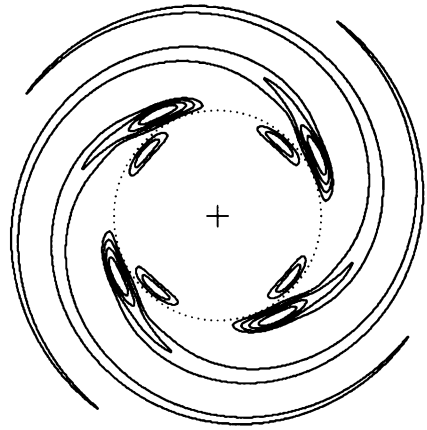

*Figure 2.* The four-armed density wave. A corotation circle is marked by a dotted line.

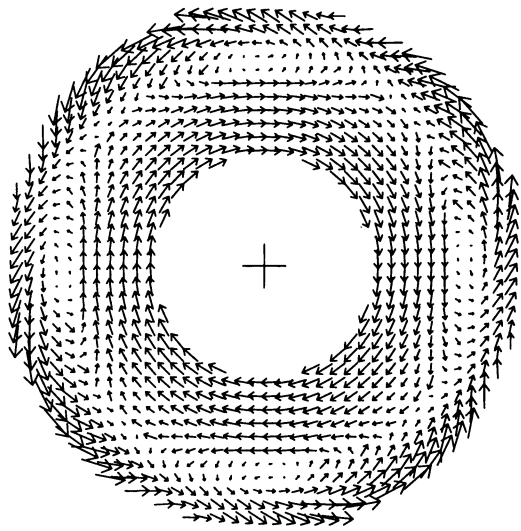

*Figure 3.* The velocity field which describes four anticyclones. For a clarity we increase the scale in two times in comparison with the Fig.2

## References

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