1067-34-1550 **Faina Berezovskaya*** (berezovskaya@howard.edu), Mathematics Department, Howard University, Washington, DC 20059. *Asymptote of orbits of a planar polynomial vector field with the fixed Newton polygon.*

The following statement has been proven.

Theorem. Consider a polynomial planar system on the Poincaré sphere that has an orbit $\{u_1(t), u_2(t)\}$, which tends to one of the following four equilibria $(m, l) = (0, 0), (0, \infty), (\infty, 0), (\infty, \infty)$ with a specified slope as $t \to \infty$ or $t \to -\infty$.

Then, in the case of a general position, only the following asymptotes of the orbit are possible: i) $u_1 \equiv 0$ and / or ii) $u_2 \equiv 0$ and / or iii) $u_2 = ku_1^{\rho}(1 + o(1))$, k=const$\neq 0$,
where $\rho > 0$ if $(m, l) = (0, 0)$ or $(m, l) = (\infty, \infty)$ and $\rho < 0$ if $(m, l) = (0, \infty)$ or $(m, l) = (\infty, 0)$.

The conditions of the general position are formulated, and the values of ρ and k are determined with help of the Newton Polygon of the system. (Received September 21, 2010)