

# DISCRETE AND CONTINUOUS DYNAMICS OF NILPOTENT POLYNOMIAL VECTOR FIELDS IN $\mathbb{R}^3$

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We will show some results on the dynamics of nilpotent vector fields in dimension three. The study is carried out from the discrete and continuous points of view. In the discrete context, is proved that each dynamical system has a unique fixed point and no 2-cycles. Moreover, either the fixed point is a global attractor or there exists a 3-cycle which is not a repeller. In the continuous case, we will show that some nilpotent vector fields have a surface foliated by periodic orbits.

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