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On the Global Analytic Integrability of the Belousov–Zhabotinskii System

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Abstract

The well–known Belousov–Zhabotinskii system can be written as

$$\dot{x} = s(x + y - qx^2 - xy), \quad \dot{y} = s^{-1}(-y + fz - xy), \quad \dot{z} = w(x - z)$$

with $f, q, s, w \in \mathbb{R}$ and $s \neq 0$. In this paper we characterize its global analytic first integrals.

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Key words. formal integrability, analytic integrability, Belousov–Zhabotinskii system

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