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On a structure of the intersection of the set of dispersions of two second-order linear differential equations. (English) Zbl 0543.34026

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A function $X \in C^3(j)$, X'(t)$\neq 0$ for $t \in j := (a, b) \subset \mathbb{R}$ is said to be a dispersion of (q) $y'' = q(t)yq \in C^0(\mathbb{R})$ if it is a solution of the differential equation

$$(-1/2)X'''/X' + (3/4)(X''/X')^2 + X'^2 \cdot q(X) = q(t).$$

Denote L_q the set of dispersions of (q). Let $q_1 \in C^0(\mathbb{R})$, $(q_1/q_2) \in C^2(\mathbb{R})$, $q_1(t) \neq q_2(t)$ for $t \in \mathbb{R}$ and let q_1 be oscillatory. In this paper the algebraic structure of the set $L_{q_1} \cap L_{q_2}$ is investigated. New results are obtained owing to lectures at the seminar of the Institute of Mathematics of the Czechoslovak Academy of Science in Brno given by Prof. Boruvka.

Reviewer: M.Hačik

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34C20 Transformation and reduction of ordinary differential equations and systems, normal forms

34A30 Linear ordinary differential equations and systems

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