

CLASSIFICATION OF HARMONIC STRUCTURES ON INTERVALS

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A harmonic structure on an open interval is given by assigning, for each open subinterval, a real vector space of continuous functions satisfying certain properties (the sheaf property, the Harnack property, and the regularity property). Examples of harmonic structures on an interval are the solutions of the ODE $y'' - \lambda y = 0$, where $\lambda \in \mathbb{R}$. These solutions are the linear functions if $\lambda = 0$, hyperbolic functions if $\lambda > 0$, trigonometric functions if $\lambda < 0$. In this talk, based on joint work with I. Bajunaid, J. Cohen and D. Singman, I will discuss the problem of characterizing the harmonic structures on an interval and provide examples of harmonic structures generated by non-smooth functions.