APRESENTA:

On the Number of Solutions in Differential Equations

05/07/2024 às 10h00
Online via *link*
https://meet.google.com/qdq-kusm-she

Prof. Dr. David G. Costa

University of Nevada

Universidade Federal de Campina Grande
Centro de Ciências e Tecnologia
Unidade Acadêmica de Matemática

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Abstract. I start by recalling 3 illustrative examples of graphs of real functions $f(x)$ on the real line and finding their zeros, i.e., solutions of the equations $f(x) = 0$. Also, the "parametrized" equation $f(x) + \lambda = 0$ (λ, a real parameter) shows where and how the solutions can vary with λ. Then, it is shown that solutions of "autonomous" second order differential equations can be studied via the "Phase-Plane Method" and "Conservation of Energy" statement is given. Finally, two examples are studied: 1) An ordinary differential equation, the well-known "Logistic Equation", where "Equilibrium States" are studied, and 2) A one-dimensional "Reaction-Difusion Equation", where "Stationary Solutions" are considered by the "Phase-Plane Method".

[†]E-mail: *costa@unlv.nevada.edu.*
Website: https://www.unlv.edu/people/david-costa