

Nonlinear Systems of ODEs Subject to Non-Local Boundary Conditions

Lucía López-Somoza

Universidade de Santiago de Compostela, Santiago de Compostela, Spain
LUCIA.LOPEZ.SOMOZA@USC.ES

Abstract

In this talk we will present a method to derive an explicit formula for the Green's function corresponding to a particular class of systems of differential equations subject to linear non-local boundary conditions. The novelty of our work lies in the fact that the unknown functions are not decoupled, neither in the equations nor in the boundary conditions of the system. Furthermore, we show that the aforementioned decomposition makes it possible to enhance certain results concerning the existence of solutions for nonlinear systems with linear non-local boundary conditions.

References

- [1] A. Cabada, L. López-Somoza, M. Yousfi, *Existence of solutions of nonlinear systems subject to arbitrary linear non-local boundary conditions*, Journal of Fixed Point Theory and Applications, 25 (81), 1–24 (2023).