

ON THE SOLUTION SET OF A TWO POINT BOUNDARY VALUE PROBLEM

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Abstract. We consider a nonconvex and nonclosed second order differential inclusion with nonlocal boundary conditions and we prove the arcwise connectedness of the solution set.

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References

- [1] M. Benchohra, S. Hamani and J. Henderson, *Functional differential inclusions with integral boundary conditions*, Electron. J. Qual. Theory Differ. Equations, **2007** no. 15 (2007), 13pp (electronic). [MR2326662\(2008e:34022\)](#).
- [2] S. Brykalov, *A second order nonlinear problem with two point and integral boundary conditions*, Georgian Math. J. **1**(1994), 243-249. [MR1262564\(94k:34035\)](#). [Zbl 0807.34021](#).
- [3] A. Cernea, *Qualitative properties of solution sets to a class of nonconvex nonclosed integral inclusions*, An. Univ. Bucureşti Mat., **49**(2000), 123-131. [MR1892829\(2002m:45007\)](#).
- [4] A. Cernea, *On the set of solutions of some nonconvex nonclosed hyperbolic differential inclusions*, Czech. Math. J. **52(127)**(2002), 215-224. [MR1885466\(2003b:35218\)](#). [Zbl 1010.34002](#).
- [5] A. Cernea, *On the solution set of a nonconvex nonclosed second order differential inclusion*, Fixed Point Theory **8**(2007), 29-37. [MR2309277\(2007m:34025\)](#). [Zbl 1133.34009](#).
- [6] A. Cernea, *On the set of solutions of a nonconvex nonclosed higher order differential inclusion*, Math. Commun. **12**(2007), 221-228. [MR2382458](#). [Zbl pre05244271](#).

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- [7] A. Cernea, *On a nonlocal boundary value problem for a second order differential inclusion*, An. Univ. Bucureşti Mat. **56**(2007), 281-288. [MR2398074](#).
- [8] A. Cernea, *On the solution set of some classes of nonconvex nonclosed differential inclusions*, Portugaliae Math., to appear.
- [9] J. M. Gallardo, *Second order differential operators with integral boundary conditions and generations of semigroups*, Rocky Mountain J. Math. **30**(2000), 1265-1292. [MR1810167](#)(2002a:34122). [Zbl 0984.34014](#).
- [10] G. L. Karakostas and P. Tsamatos, *Multiple positive solutions of some Fredholm integral equations arisen from nonlocal boundary value problems*, Electron. J. Differ. Equations. **2002** no. 30 (2002), 17pp (electronic). [MR1907706](#)(2003e:45012). [Zbl 0998.45004](#).
- [11] A. Lomtadze and L. Malaguti, *On a nonlocal boundary value problems for second order nonlinear singular differential equations*, Georgian Math. J. **7**(2000), 133-154. [MR1768050](#)(2001a:34040). [Zbl 0967.34011](#).
- [12] S. Marano, *Fixed points of multivalued contractions with nonclosed, nonconvex values*, Atti. Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Natur. **5**(1994), 203-212. [MR1298263](#)(95j:54036). [Zbl 0862.54040](#).
- [13] S. Marano and V. Staicu, *On the set of solutions to a class of nonconvex nonclosed differential inclusions*, Acta Math. Hungar. **76**(1997), 287-301. [MR1459237](#)(98h:34032a). [Zbl 0907.34010](#).

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