ON COUPLED COINCIDENCE POINT FOR THREE MAPPINGS IN PARTIALLY ORDERED METRIC SPACES

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ABSTRACT

A coupled fixed point theorem for non-linear contraction is established for three self maps by using concept of mixed monotone mappings in partially ordered metric spaces. The result generalizes the recent fixed point theorem of V.Lakshmikantham and Ljubomir Ciric[7] and includes several recent developments.

Keywords: Coupled fixed point, Coupled coincidence point, Coupled common fixed point, Partially ordered set, Mixed monotone mapping AMS(MOS) Subject Classification(2000): 54H25, 47H10.

REFERENCES

R.P. Agarwal, M.A. EI-Gebeily, D.O. Regan, Generalized contractions in partially ordered metric spaces, Appl.Anal.87. 2008, 1-8.

D.W. Boyd, J.S. Wong, On nonlinear contractions, Proc. Amer. Math. Soc. 20,1969 458-464.

- T.Gnana Bhaskar, V.Lakshmikantham, Fixed point theorems in partially ordered metric spaces and application, Nonlinear Anal. TMA 65. 2006, 1379-1393.
- T.Gnana Bhaskar, V.Lakshmikantham, J.Vasundhara Devi, Monotone iterative technique for functional differential equations with retardation and anticipation, Nonlinear Anal.TMA 66(10) 2007, 2237-2242.
- Jacek Jachymski, The contraction principle for mapping on a metric space with a graph, Proc. Amer. Math. Soc. 136 4. 2008, 1359-1373.
- J. Harjani, K. Sadarangani, Fixed point theorems for weakly contractive mappings in partially ordered sets, Nonlinear Anal.71. 2009, 3403 34.
- V. Lakshmikantham, Ljubomir Ciric, Coupled fixed point theorems for non linear contractions in partially ordered metric spaces. Nonlinear Analysis Vol 70. 2009, 4341-4349.
- J.J.Neito, R.R. Lopez, Contractive mapping theorem in partially ordered sets and applications to ordinary differential equation, Order 22. 2005, 223-239.
- J.J. Neito, R.R. Lopez, Existence and uniqueness of fixed point in partially ordered sets and applications to ordinary differential equation, Acta Math. Sirica. Engl. Ser. 23(12). 2007, 2205-2212.
- A.C.M. Ran, M.C.B. Reurings, A fixed point theorem in partially ordered sets and some applications to matrix equation ordinary differential equation, Proc. Amer. Math. Soc.132. 2004, 1435-1443.