DR MIRJANA STOJANOVIĆ: CURRICULUM VITAE

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Personal data: Born 2 September 1951, in Gajdobra near Novi Sad, Serbia, *B.S.* 1970-74, *M.S.* 1981, at University of Belgrade, *PhD.* 1991. at University of Novi Sad.

Employment. She has been employed at Institute of Mathematics and Informatics, University of Novi Sad since 1975. Teaching Assistant 1978, Assistant Professor 1992, Associate Professor 1997, Full Professor since 2002.

She has been teaching general courses on Analysis and Algebra (Calculus and Advanced Calculus, Functions of several variables, Integral calculus, Statistics).

She is the author or co-author of 80 scientific papers and co-author of the 2 textbook (1. *Calculus* ; 2.*Function of several variables-differential and integral calculus*). At the present time she is a member of GAMM, ISAAC and rewiever for Zentralblatt fur Mathematik and many world wide highly ranked mathematical journals.

Visits to another Universities:

1. UIC (University of Illinois at Chicago, USA), 1 month, 1998, research programm;

2. Visiting professor at Carleton University, Ottawa, Canada, in the summer 1999;

3. Invited professor at University of Innsbruck, Austria, in May 2000;

4. University of Innsbruck, Austria, research programm, one month, November 2004.

5. Free University of Berlin, visiting professor from 12.05-11.08. 2006, DFG grant.

6. Invited lecture at Leibnitz University, Hannover, 8.07.2006.

Education:

1. School of KAM-theory at DTU, Lingby, Denmark in June 2001;

2. School of Fluid structures and its interaction, Prague, August 2001.

3. Winter school on Geometric theory of Generalized Functions with Applications to General Relativity, Novi Sad, February 2003.

4. School on Time frequency Analysis, March 2006, Novi Sad;

5. School on fractional calculus and its Applications, University of Novi Sad, 16-24.09.2007.

6. WUS-Summer school: Generalized functions in PDE, geometry, stochastics and microlocal analysis, August 30 September 8, 2010, Novi Sad.

Collaborates.

1. Prof. S. Pilipović, University of Novi Sad, Serbia;

2. Prof. Michael Oberguggenberger, University of Innsbruck, Austria;

3. Prof. J.A.-Marti, University of Guyana, French Guyana;

4. Prof. R. Gorenflo, Free University of Berlin, Germany;

5. A. Khan, Muslim University, Aligarh, India.

RESEARCH

I. Numerical analysis:

1. Singular perturbation problem. Singular perturbation problems, splines collocation techniques, method of finite elements, uniformly and optimally accurate difference schemes, regularization with delta sequences.

2. Numerical approach to generalized functions: Laguerre and Hermite expansions of generalized functions and its application to integral transforms and nonlinear PDEs equations with singularities. Solving convolution equations and fractional convolution equation via Laguerre and Hermite polynomials.

II. Nonlinear theory of Generalized functions and its application to solving nonlinear PDEs of evolution type with singularities in a framework of Colombeau theory of generalized functions

1. Integral equations. Existence-uniqueness results for nonlinear PDEs in integral form, with non-Lipschitz nonlinearities and strongly singular initial data and potential;

2. Regularized derivatives. Regularization for derivatives with delta sequences with different growth, and selections of good mollifiers which follows singularities of PDEs.

3. Existence-uniqueness results for nonlinear PDEs, including the nonlinear parabolic equations, nonlinear Schrödinger equation with singular initial data and potential, bounded solutions, solutions in L^p-spaces with regularized derivatives, existence-uniqueness of the weak solutions, regularity properties.

4. Asymptotic behavior. (quasi-asymptotic, *Sc*-asymptotic) and expansions of generalized functions (say, δ^2) and the asymptotical expansions of the solutions to nonlinear PDEs.

III. Fractional derivatives, fractional partial differential equations, fractional time evolution equations, time fractional equations of distributed order.

Distributed order time fractional equations and its nonlinear analogous, with fractional time and space operator, the existence-uniqueness result, numerical approach by orthogonal polynomials to equations with fractional derivatives (relaxation equation, diffusion-wave phenomena). Existence-uniqueness results for nonlinear fractional PDEs equations, especially fractional time evolution equations, with singularities, in Colombeau algebra of generalized functions.

RECENT PUBLICATIONS

1. Rajter-Ćirić D., Stojanović M., *Convolution-type derivatives and transforms of Colombeau generalized stochastic processes*, Integral Transforms and Special Functions, Volume *22*, Issue 4 & 5, 2011, Pages 319 - 326, DOI:10.1080/10652469.2010.541047 .

2. Stojanović M., *Numerical method for solving diffusion-wave phenomena*, Journal of Computational and Applied Mathematics, Vol. *235*, Issue 10, 15 March 2011, 3121-3137, DOI:10.1016/j.cam.2010.12.010.

3. Stojanović M., *Fractional derivatives in spaces of generalized functions*, FCAA,

Fract. Calc. Appl. Anal. Vol. *14*, No 1 (2011), pp.125-137, DOI:10.2478/s13540-011-0009-5.

4. Stojanović M., *Foundation of the fractional calculus in generalized functions algebra*, Analysis and Applications, (2011).

5. Stojanović M., *Relaxation equations of distributed order*, Nonlinear Analysis, World of Applications, doi:10.1016/j.nonrwa.2011.08.028 (2011).

RECENT CONFERENCES

1. M. Stojanović, *Fractional partial differential equations*, Mathematical and Informational Technologies, MIT 2011, Vrnjacka banja, 27.08.-31.08.2011.

Current projects

1. MNTR 174024 Methods of Functional and Harmonic Analysis and PDE with Singularities Project organizer: Academician Stevan Pilipović Duration: 2011-2014 MNTR

2. APV 114-451-2167/2011-12 Methods of Functional Analysis and Fractional Calculus with Applications in Mechanics Project organizer: Sanja Konjik Duration: 2011-2014