فهرست مطالب

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❖ مقالات انتشار یافته اعضای هیات علمی در مجلات علمی

❖ گروه آمار:

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problem. Namely, in thefirst step, the problem in hand restates as a time invariant which has exact solution. Finally, theexact solution for the time-dependent model arrives by substituting such solution in an integralequation. Applications to the Greeks of the contracts are given.

A.Nademi ,R .Farnoosh, "Mixtures of autoregressive-autoregressive conditionally heteroscedastic models: semi-parametric approach" , Journal of Applied Statistics ,Volume 41, Issue 2, 275-293, 2014 .

Abstract.We propose data generating structures which can be represented as a mixture of autoregressive-autoregressive conditionally heteroscedastic models. The switching between the states is governed by a hidden Markov chain. We investigate semi-parametric estimators for estimating the functions based on the quasi-maximum likelihood approach and provide sufficient conditions for geometric ergodicity of the process. We also present an expectation–maximization algorithm for calculating the estimates numerically.

S.J. Mortazaviand R. Farnoosh , "The Prediction Nonlinear-Autoregressive Model for Annual Ring Width of PinusEldarica with Semi-Parametric Approach" , World Applied Sciences Journal 26 (6): 783-787, 2013.

Abstract:The aim of this research is to find the regularity in frequencies of diameter increment and determine the relationship between tree age and fluctuations in radial increment of Pine trees (PinusEldarica). In this direction, three normal pine trees from Kelardashat site (north of Iran) were selected. Disks were cut down at breast height and the annual ring width in radial axis (1974-2008) was determined by Binocular system. The additive functional-autoregressive model is considered and semi-parametric method is proposed to forecast regression function. Furthermore, the method is applied for annual ring width

R.FARNOOSH , P.NABATI , "A STOCHASTIC PERSPECTIVE TO RANDOM SHIP HEAVE MOTION BASED ON DIFFERENT NOISES" , IJST , Volume 37 , Number A3; Page(s) 211 To 217, 2013.

Abstract.The stochastic models for ship heave motion in irregular sea waves based on white and colored noises are examined. For this purpose the deterministic model transfers to stochastic models by adding different noise terms in force and then these models are solved analytically and numerically. Finally an investigation is undertaken to examine the parameter estimation problem of second order stochastic differential equations when some of the measurements are unavailable or missing data. Several simulation results are presented to illustrate the performance of the estimators.

M.H. Beheshti, A.Payande and R. Farnoosh, "An analytical approach to pricing discrete barrier options under time-dependentmodels" , ejsr,2013.

Abstract. Consider the problem of pricing a discrete barrier option under a time-dependent framework. Thisarticle in two steps provides an analytical solution for such intersecting

❖ گروه آنالیز:

Aghajani, A. MoslehTehrani, Pointwiselower bounds for solutions of semilinearelliptic equations and applications, Advanced nonlinear studies 14 (2014), 839-856.

Abstract: We consider the semilinear elliptic problem $-\Delta u = f(x,u)$, posed in a smooth bounded domain Ω of $\mathbb{R}^N$ with Dirichiel data $u|_{\partial\Omega} = 0$, where $f : \Omega \times [0, a_f) \to \mathbb{R}_+$ ($0 < a_f \leq +\infty$) is a function of appropriate regularity which blows up at a_f. We give pointwise lower bounds for the supersolutions under some appropriate conditions on f, and apply them to eigenvalue problem $-\Delta u = \lambda f(x,u)$, by giving upper and lower bounds for the extremalparameter$\lambda^*$and the extremalsolution u^*. To demonstrate the sharpness of our results, we consider the eigenvalue problem $-\Delta u = \lambda f(u^{p*})$ ($p \geq 1$) with Dirichlet boundary condition, and show that for every increasing, convex and superlinearC^2function $f : \mathbb{R}_+ \to \mathbb{R}_+$ with

$f(0) > 0$, $\lambda_p^* \to \frac{1}{f(0)\psi_\Omega}$ and$||u_p^*||_\infty \to \infty$, where ψ_Ω is the maximum of the torsion function of . Also, we consider the eigenvalue problem $-\Delta u = \lambda\rho(x)f(u)$, where f is either a regular singularity such as $f(u) = e^u$, or a singular one such as $f(u) = \frac{1}{(1-u)^2}$and give explicit estimates on λ^* and u^*, that improve and extend several results in the literature, by Payne[17], Sperb [21], Brezis-Vasquez [3], Guo-Pan-Ward [11], Ghoussoub-Guo [10], Cowan-Ghoussoub [6], and others.

A. Aghajani, M. Rivero, J.J. Trujillo, E. Pourhadi,Application of Perov's fixed point theorem to Fredholm type integro-differential equations in two variables, MathematicaSlovaca(Accepted in April 2014).

Abstract: In this paper , we consider the concept of the so-called generalized metric space and give some results on the existence,

prediction. The results showed that the nonlinear time series model is an efficient models for prediction of annual ring width.

Gh. Yari, A. Chaji, "Determination of Ordered Weighted Averaging Operator Weights Based on the M-Entropy Measures" International Journal of Intelligent Systems,Volume 27, Issue 12, 1020–1033, 2012.

Abstract. In this paper, based upon the M-Entropy measures, two new models for obtaining the ordered weighted averaging (OWA) operators are propoosed. In these models, it is assumed, according to available information, that the OWA weights are in a decreasing or increasing order. Some properties of the models are analyzed, and the method of Lagrange multipliers is used to provide a direct way to find these weights. The models are solved with a specific level of orness comparing the results with some other related models. The results demonstrate the efficiency of the M-Entropy models in generating the OWA operator weights.

Gh.Yari, A.Mirhabibi, A. Saghafi, " Estimation of the Weibull parameters by Kullback-Leibler divergence of Survival functions"Applied Mathematics & Information Sciences,187-192,2013.

Abstract. Recently, a new entropy based divergence measure has been introduced which is much like Kullback-Leibler divergence. This entropy measures the distance between an empirical and a prescribed survival function and is a lot easier to compute in continuous distributions than the K-L divergence. In this paper we show that this distance converges to zero with increasing sample size and we apply it to estimate Weibull parameters. Detailed simulations show a higher performance of the new estimation method than the commonly used maximum likelihood and linear regression methods in Weibull scale parameter estimation. Using unbiasing factors provided in this paper for Weibull shape parameter estimation, one can obtain unbiased estimation for Weibull modulus.

Banach space, a characterization using L-functions and provide a few generalization of Darbo fixed point theorem. Also, we introduce the concept of a bivariate Meir-Keleer condensing operator and prove some coupled fixed point theorems. As an application, we prove the existence of solutions for a large class of functional integral equations of Volterra type in two variables.

A. Aghajani, A two-phase free boundary problem for a semilinear elliptic equation, Bull. Iranian Math. Soc. Vol. 40 (2014), no, 5.pp. 1067-1086.

Abstract: In this paper we study a two-phase free boundary problem for a semilinear elliptic equation on a bounded domain D Rn with smooth boundary. We give some results on the growth of solutions and characterize the free boundary points in terms of homogeneous harmonic polynomials using a fundamental result of Caffarelli and Friedman regarding the representation of functions whoseLaplaciansenjoy a certain inequality. We show that in dimension n=2, solutions have optimal growth at non-isolated singular points, and the same result holds for n≥3 under an (n-1) -dimensional density condition. Furthermore, we prove that the set of points in the singular set that the solution does not have optimal growth is locally countably (n-2) -rectifiable.

A. Aghajani, M. Abbas, J. R. Roshan, Common fixed point of generalized weak contractive mappings in partially ordered Gb-metric spaces,Filomat 28:6 (2014)

Abstract:In this work, using the concepts of G-metric and b-metric we define a new type of metric which

we call Gb-metric. We study some basic properties of such metric. We also prove a common fixed point

theorem for six mappings satisfying weakly compatible condition in complete partially ordered Gb-metric

uniqueness and estimation of the solutions of Fredholm type integro-differential equations in two variables using Perov's fixed point theorem. Furthermore, we give some illustrative examples to verify the effectiveness and applicability of our main result.

A. Aghajani, A. MoslehTehrani, D. O'Regan, Some new fixed point results via the concept of measure of noncompactness, Filomat, (In press)

Abstract: In this paper we present a generalization of Darbo's fixed point theorem and using this generalization we prove an €-fixed point result in Banach spaces. Also, we present a generalization of Darbo and Sadovskiì fixed point theorem in uniformly convex Banach spaces.

A. Aghajani, M. Abbas, J. RezaeiRoshan, Common fixed point of generalized weak contractive mappings in partially ordered B-metric spaces, MathematicaSlovaca, 64(2014), No. 4,941-960

Abstract: We prove some common fixed point results for four mappings satisfying generalized weak contractive condition in partially ordered complete b-metric spaces. Our results extend and improve several comparable results in the existing literature.

A. Aghajani, M. Mursaleen, K. Raj, Multiplication Operators on Cesàro Function Spaces, ActaMathematicaScientia (In press)

Abstract:In this paper , we characterize the compat, invertible, Fredholm and closed range multiplication operators on Cesàro function spaces.

A. Aghajani, M. Mursaleen, A. Sh. Haghighi, Fixed point theorems for Meir-Keeler condensing operators via measure of noncompactness(ActaMathematicaScientia , 2015, 35B (3):1-15.

Abstract:In this article we introduce the notion of Meir-Keleer condensing operator in a

$(t-s)^{1-\alpha})ds$, $\int_0^\infty V(t,s,x(t))ds)$, $0<\alpha \le 1$, $t\in[0, 1]$ in the space of real functions defined and continuous on the interval [0, 1].

M. B. Ghaemi, G. A. Afrouzi, M. Choubin, S.H. Rasouli, On the existence of positive weak solutions for a class of (p,q)-Laplacian nonlinear elliptic system with sign-changing weights,

Abstract: In this paper, we prove the existence of positive weak solution for the nonlinear elliptic system

$$\begin{cases} -\Delta_p u = \lambda_1 a(x)f(v) + \mu_1\, \alpha(x)h(u), & x \in \Omega \\ -\Delta_q v = \lambda_2\, b(x)g(u) + \mu_2\, \beta(x)\gamma(v), & x \in \Omega \\ \quad\quad u = 0 = v, & x \in \partial\Omega \end{cases}$$

where $\Delta_p u = div(|\nabla u|^{p-2}\nabla u)$, p>1,$\lambda_1,\lambda_2,\mu_1$and $\mu_2$are positive parameters, and Ω is a bounded domain in $\mathbb{R}^N$. Here a(x),b(x),α(x)and β(x)are sign-changing functions that maybe negative near the boundary. We discuss the existence of positive solution via sub-super-solutions without assuming sign conditions on f(0),h(0),g(0)and γ(0).

M. B. Ghaemi, M. Hesaaraki, Kh. Baghaei, Global existence of classical solutions to a cancer invasion model, Applied mathematics, 2012, 3, 382-388.

Abstract: This paper deals with a chemotaxis-haptotaxis model of cancer invasion of tissue. The model consists of three reaction-diffusion-taxis partial differential equations describing interactions between cancer cells, matrix degrading enzymes, and the host tissue. The equation for cell density includes two bounded nonlinear density-dependent chemotactic and haptotactic sensitivity functions. In the absence of logistic damping, we prove the global existence of a unique classical solution to this model by some delicate a priori estimate techniques.

M. B. Ghaemi, S. H. Rasouli, G. A. Afrouzi, M. Choubin, On the existence of positive solutions for a class of infinite

spaces. A nontrivial example is presented to verify the e_ectiveness and applicability of our main result.

A. Aghajani, E. Pourhadi, Application of measure of noncompactness to ell_1-solvability of infinite systems of second order differential equations, Bull. Belg. Math. Soc. Simon Stevin (Accepted in September 2014).

Abstract: The purpose of this work is to establish a new generalization of Darbo type fixed point theorem using the concept of the so-called α-admissibility and the Schauder fixed point theorem. We also include an example which shows that our results are applicable where the previous ones are not. Moreover, we apply our main result to the problem of existence of solutions for a class of infinite systems of second order differential equations.

M. B. Ghaemi, A. Samadi, An extension of Darbo fixed point theorem and its applicationsto coupled fixed point and integral equations, Filomat 28:4 (2014), 879–886.

Abstract: In this paper, an extension of Darbo fixed point theorem is introduced. By applying our extension, we obtain a coupled fixed point theorem and a solution for an integral equation. The proofs of our results are based on the technique of measure of noncompactness.

M. B. Ghaemi, A. Samadi, An extension of Darbo'stheorem and its application, Abstract and applied analysis, Volume 2014 (2014).

Abstract: Here, some extensions of Darbo fixed point theorem associated with measures of noncompactness are proved. Then, as an application, our attention is focused on the existence of solutions of the integral equation $x(t)=F(t,f(t,x(\alpha 1(t)),x(\alpha 2(t))),\ ((Tx)(t)/\Gamma(\alpha))\ \times \int_0^t(u(t,s,\max_{[0,r(s)]}|x(\gamma 1(т))|,\max_{[0,r(s)]}|x(\gamma 2(т))|)\ /$

variable exponent, Journal of Nonlinear and Convex analysis, (In press)

Abstract. A nonlinear weighted problem

$$\begin{cases} -\mathrm{div}\,(a(x)|\nabla u|^{p(x)-2}\nabla u) + b(x)|u|^{q(x)-2}u(x) - \lambda c(x)|u|^{r(x)-2}u(x) = f(x,u); \\ |\nabla u|^{p(x)-2}\frac{\partial u}{\partial \nu} + \beta(x)|\nabla u|^{p(x)-2}u = 0, \end{cases}$$

with Robin boundary value condition is studied. We study maximum or minimum growth of the corresponding energy functional by various conditions on p; q; r, so we conclude various results about the behavior of energy functional and by applying some variational methods, several existence results for the sequence of weak solutions are obtained. Finally, we study our problem by modelling as a nonlinear eigenvalue problem.

❖گروه آنالیز عددی:

J. Rashidinia·A. Barati·M. Nabati, "Application of Sinc-Galerkin method to singularly perturbed parabolic convection-diffusion problems" , Find out how to access preview-only content Numerical Algorithms ,July 2014, Volume 66, Issue 3, pp 643-662 ,2013.

Abstract. We develop a numerical algorithm for solving singularly perturbed onedimensional parabolic convection-diffusion problems. The method comprises a standard finite difference to discretize in temporal direction and Sinc-Galerkin method in spatial direction. The convergence analysis and stability of proposed method are discussed in details, it is justifying that the approximate solution converges to the exact solution at an exponential rate. we know that the conventional methods for these problems suffer due to decreasing of perturbation parameter, but the Sinc method handel such difficulty as singularity. This scheme applied on some test examples, the numerical results illustrate the

semipositone problems, U.P.B. Sci. Bull., Series A, Vol. 76, Iss.4, 2014.

Abstract: we discuss the existence of a positive solution to the infinite semipositone problem

$$-\Delta u = -au + bu^2 - du^3 - f(u) - \frac{c}{u^\alpha}, \quad x \in \Omega,$$
$$u = 0, \quad x \in \partial\Omega,$$

Where $\alpha \in (0,1)$, a, b, d and c are positive constants, Ω is a bounded domain in $\mathbb{R}^N$ with smooth boundary $\partial\Omega$, Δ is the Laplacian operator, and $f: [0,\infty) \to \mathbb{R}$ is a nondecreasing continuous function such that $f(u) \to \infty$ and $f(u)/u \to 0$ as $u \to \infty$. We obtain our result via the method of sub- and supersolutions. We also extend our result to classes of infinite semipositone system and p-Laplacian problem.

M. B. Ghaemi, Kh. Baghaei , M. Hesaaraki, Lower bounds for the blow-up time in a semilinear parabolic problem involving a variable source, Applied mathematics letters, Volume 27, January 2014, Pages 49–52.

Abstract:This letter is concerned with the blow-up of the solutions to a semilinear parabolic problem with a reaction given by a variable exponent. Lower bounds for the time of blow-up are derived if the solutions blow up.

S. Saiedinezhad, The Fibering map approach to a quasilinear degenerate p(x)-Laplacian equation, Bull. Iranian Math. Soc., (In press).

Abstract: By considering a degenerate p(x)-Laplacianequation,a generalized compact embedding in weighted variable exponentSobolev space is presented. Multiplicity of positive solutions arediscussed by applying _bering map approach for the corresponding Nehari manifold.

S. Saiedinezhad, V. Radulescu, Multiplicity results for a nonlinear Robin problem with

occur at each monitoring date, and whose convergence rate is enhanced by means of a repeated Richardson extrapolation procedure. Numerical experiments are carried out which reveal that the method proposed achieves fourth-order accuracy in both space and time (even if the solutions being approximated are non-smooth), and performs hundredths of times better than a finite difference scheme in Wade et al. (J ComputAppl Math 204:144–158, 2007). To the best of our knowledge, the one developed in the present paper is the first lattice-based approach for discrete barrier options which is empirically shown to be fourth-order accurate in both space and time.

A.Golbabai, S. Panjeh Ali Beik, "An efficient method based on operational matrices of Bernoulli polynomials for solving matrix differential equations" , Find out how to access preview-only content ,Computational and Applied Mathematics , 2014 .

Abstract. The current paper deals with elaborating a novel framework for solving a class of linear matrix differential equations. To this end, the operational matrices of integration and the product based on the shifted Bernoulli polynomials are presented and a general procedure for forming this matrices is given. The properties of this matrices are exploited to reduce the main problem to a linear matrix equation. Numerical experiments are reported to demonstrate the applicably and efficiency of the propounded technique.

M. Garshasbi et.al. "A Mollified Gradient Approach for Solving an Inverse Moving Boundary Problem", J. Math.Exten., 8 (1) 97-111, 2014.

Abstract. In this paper a numerical procedure based on mollification approach and conjugate gradient method is established to solve a one dimensional inverse moving boundary value problem. The problem is considered with noisy data. A regularized problem using mollificationapproach is considered and the conjugate gradient method is used to solve the

efficiency of the method and confirm the theoretical behavior of the rates of convergence.

JalilRashidinia, Zahra Mahmoodi, "Collocation method for Fredholm and Volterra integral equations", Kybernetes, Vol. 42 Iss: 3, pp.400 – 412, 2013.

Abstract.The purpose of this paper is to develop a numerical method based on quintic B-spline to solve the linear and nonlinear Fredholm and Volterra integral equations.

J. Rashidinia·A. Barati·M. Nabati, "Sinc-Galerkin and Sinc-Collocation methods in the solution of nonlinear two-point boundary value problems" ,Computational and Applied Mathematics ,Volume 32, Issue 2, pp 315-330 , 2013.

Abstract. A comparative study of the Sinc-Galerkin and Sinc-Collocation methods for solving singular and nonsingular nonlinear second-order two-point boundary value problems (BVPs) with nonhomogeneous boundary conditions is given. We developed the Sinc-Galerkin and Sinc-Collocation methods to approximate the nonlinear two-point BVPs. These method are tested on the test examples and compared with several existing methods. The demonstrated results show that both of the presented methods more or less have the same accuracy, but in comparison with the other existing methods are considerable accurate.

A.Golbabai, L. V. Ballestra, D. Ahmadian "A Highly Accurate Finite Element Method to Price Discrete Double Barrier Options" , Computational Economics , Volume 44, Issue 2, pp 153-173 , 2014.

Abstract. We develop a highly accurate numerical method for pricing discrete double barrier options under the Black–Scholes (BS) model. To this aim, the BS partial differential equation is discretized in space by the parabolic finite element method, which is based on a variational formulation and thus is well-suited for dealing with the non-smoothness of the discrete barrier option solutions. In addition, the approximation in time is performed using the implicit Euler scheme, which allows us to remove spurious oscillations that may

Abstract. In this article, a one-dimensional inverse heat conduction problem with unknown nonlinear boundary conditions is studied. In many practical heat transfer situations, the heat transfer coefficient depends on the boundary temperature and the dependence has a complicated or unknown structure. For this reason highly nonlinear boundary conditions are imposed involving both the flux and the temperature. A numerical procedure based on the mollification method and the space marching scheme is developed to solve numerically the proposed inverse problem. The stability and convergence of numericalboundaries named proportional factors. The temperature and heat flux measurements in an interior point are considered as over specified data with the presence of noise. Convergence and stability of the solution for the proposed method are analyzed. To support the numerical achievements, some numerical examples are considered and discussed.

M. Garshasbi, H. Kamal Gharibi, P. Reihanim, "A Numerical Treatment of the Release of Drug in Nonswelling Transdermal Drug-Delivery Devices", Afr. Math. 25 (4), 949-960, 2014.

Abstract.The work in this paper concerns the numerical study of controlled release of drug from porous, nonswelling transdermal drug-delivery devices to a perfect sink. A general mathematical model of release of drug is considered as a nonlinear system of partial differential equations. Two numerical procedures based on finite differences method and the Levenberg–Marquardt method are proposed to solve this model numerically. To show the ability of the proposed methods, two test cases are investigated.

K. Maleknejad and K. Nedaiasl, "A sinc quadrature method for the Urysohn integral equation" J. Integral Equations Applications, Volume 25,407-429, 2013,

Abstract. In this paper, we study the numerical approximation of the Urysohn integral equation with two methods. The methods are developed by proposed problem. Some numerical examples are considered to show the ability of this method. These examples show that the accurate and stable results can be obtained efficiently for these kinds of problems.

M. Garshasbi, H. Dastour, "A mollified marching solution of an inverse ablation-type' moving boundary problem", Comp. Appl. Math. DOI 10.1007/s40314-014-0180-5, 2014.

Abstract. This study investigates the application of marching scheme and mollification method to solve a one-dimensional inverse ablation-type moving boundary problem. The problem is considered with noisy data. A regularization method based on a marching scheme and discrete mollification approach is developed to solve the proposed problem and the stability and convergence of the numerical solution are proved. Some numerical experiments are presented to demonstrate the attractiveness and feasibility of the proposed approach. It is shown that the results are in good agreement with exact solutions.

M. Garshasbi, H. Dastour, "Proportional factor estimation in an IHCP", J. Hyperstruct.3 (1), 53-67, 2014.

Abstract. In this paper, a numerical scheme is developed based on mollification method and space marching scheme for solving an inverse heat conduction problem. The proposed inverse problem contains the estimation of two unknown functions at the boundaries named proportional factors. The temperature and heat flux measurements in an interior point are considered as over specified data with the presence of noise. Convergence and stability of the solution for the proposed method are analyzed. To support the numerical achievements, some numerical examples are considered and discussed.

M. Garshasbi, H. Dastour, "Estimation of unknown boundary functions in an inverse heat conduction problem using a mollified marching scheme", Num. Alg., DOI: 10.1007/s11075-014-9871-7, 2014.

solution. Some numerical results for several test problems are given to confirm the accuracy and the ease of implementation of the method.

K.Maleknejad, A.Ebrahimzadeh "The use of rationalized Haar wavelet collocation method for solving optimal control of Volterra integral equations"JVC,2014.

Abstract.In this paper, an efficient method based on rationalized Haar (RH) wavelets is proposed for the numerical solution of optimal control problem for systems governed by Volterra integral equations with a quadratic performance index. Many problems in economics, biology, epidemiology and memory effects can be modeled as Volterra control problems. The main advantage of the RH wavelet is based on its efficiency and simple applicability. The properties of RH wavelets are represented. The operational matrices of integration and product are given. These matrices are then utilized to reduce the solution of the optimization problem to a nonlinear programming one to which well-developed algorithms may be applied. The convergence analysis of the method and illustrative examples are included to demonstrate the validity and applicability of the technique.

M.Rabbani,K.Maleknejad,"Using orthonormal wavelet basis in Petrov-Galerkin method for solving Fredholm integral equations of the second kind", Kybernetes, Vol. 41 Iss: 3/4, pp.465 – 481,2014.

Abstract.The purpose of this paper is to explain the choice of Alpert multi-wavelet as basis functions to discrete Fredholm integral equation of the second kind by using Petrov-Galerkin method.

A.Aghajani, M.Haghpanahi, T.Nikazad, "The ultrasound elastography inverse problem and the effective criteria. ProcInstMechEng H"227(11),1203-12, 2013 .

Abstract.Theelastography (elasticity imaging) is one of the recent state-of-the-art methods for diagnosis of abnormalities in soft tissue. The idea

means of the sinc approximation with the Single Exponential (SE) and Double Exponential (DE) transformations. These numerical methods combine a sincNystr\"{o}m method with the {N}ewton iterative process that involves solving a nonlinear system of equations. We provide an error analysis for the methods. These methods improve conventional results and achieve exponential convergence. Some numerical examples are given to confirm the accuracy and ease of implementation of the methods.

A.Khademi,K. Maleknejad, "Multi-projection method for Volterra integral equations at the collocation points" Applied Mathematics Letters, Volume 26, Issue 12, Pages 1198–1205,2013.

Abstract.This study tries to reach a new order of convergence at the collocation points. For this reason we estimated the solution of the Volterra integral equation to lower and upper solutions on the $S_{m-1}^{(-1)}$ Sm−1(−1) whose elements are spline polynomials of degree m−1. Since the upper solution is based on the iterated method the super convergence cannot be accrued at the collocation points. In fact, the upper solution at these points is equal to zero. Therefore, the lower solution which is obtained from the linear system of equations is supposed as an approximating solution at the collocation points and the order of convergence at these points for m=1 is 2 and otherwise m+2.

K. Maleknejad, R.Mollapourasl and P. Mirzaei "Numerical solution of volterra functional integral equation by using cubic B-spline scaling functions" Numerical Methods for Partial Differential Equations,Volume 30, Issue 2, 699–722, 2014.

Abstract.In this article, we consider a class of nonlinear functional integral equations which has rather general form and contains a lot of particular cases such as functional equations and nonlinear integral equations of Volterra type. We use a combination of a fixed point method and cubic semiorthogonal B-spline scaling functions to solve the integral equation numerically. We provide an error analysis for the method which shows that the approximate solution converges to the exact

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isomorphic to D_{14}, T_{21} =<a,b|a^3 = b^7 = 1,ba = ab^2> and < a,b|a^6 = b^7 = 1,a^{-1}ba = b^3>.

Z. Foruzanfar and Z. Mostaghim, "On 10-Centralizer Groups of Odd Order", Hindawi Publishing Corporation, ISRN Algebra, Volume 2014, Article ID 607984, 4 pages,
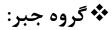
Abstract.Let G be a group, and let |Cent(G)| denote the number of distinct centralizers of its elements. A group G is called n-centralizer if |Cent(G)| = n. In this paper, we investigate the structure of finite groups of odd order with |Cent(G)| = 10 and prove that there is no finite nonabelian group of odd order with |Cent(G)| = 10.

Mohammad HosseinGhaffari, ZohrehMostaghim, "An Algorithm for calculating spheres in somefamilies of Cayley graphs", 24thIrannian Algebra Seminar, Kharazmi University, Nowember 12 and 13, 2014, Karj, Iran

Abstract.Suppose that W is a generating set for a finite group G and g is an arbitrary element of G.Finding the minimum number of elements for producing g by generators of G is equivalent to theproblem of finding the distance of g from identity in Cayley graph G =Cay(G;W). To solve thisproblem it is enough to find the radius of the sphere in G which g belongs to it. In this paper, wepropose an algorithm that helps solve this problem for those Cayley graphs that are generated byall permutations of specified cycle structures.

❖**گروه رمز:**

M. HadianDehkordi, S. Mashhadi, Two verifiable multi secret sharing schemes based on nonhomogeneous linear rescarsion and LFSR

is based on the computation of the tissue elasticity distribution. This leads to the inverse elasticity problem; in that, displacement field and boundary conditions are known, and elasticity distribution of the tissue is aimed for computation. We treat this problem by the Gauss-Newton method. This iterative method results in an ill-posed problem, and therefore, regularization schemes are required to deal with this issue. The impacts of the initial guess for tissue elasticity distribution, contrast ratio between elastic modulus of tumor and normal tissue, and noise level of the input data on the estimated solutions are investigated via two different regularization methods. The numerical results show that the accuracy and speed of convergence vary when different regularization methods are applied. Also, the semi-convergence behavior has been observed and discussed. At the end, we signify the necessity of a clever initial guess and intelligent stopping criteria for the iterations. The main purpose here is to highlight some technical factors that have an influence on elasticity image quality and diagnostic accuracy, and we have tried our best to make this article accessible for a broad audience.

❖**گروه جبر:**

ZeinabForuzanfar, ZohrehMostaghim, "A note on the number of centralizers in finite2 groups", Journal of Advanced Research in Pure Mathematics, Vol. 7, Issue. , 2015, pp. 1-9.doi: 10.5373/jarpm.

Abstract. Let G be a finite group and |Cent(G)| denotes the number of centralizers of its elements. G is called n-centralizer if |Cent(G)| = n and primitive n-centralizer if |Cent($\frac{G}{Z(G)}$)| = n. In this paper, we prove that, if G is a primitive 9-centralizer group, then $\frac{G}{Z(G)}$ is

with gas bubbles", International Journal of Non-Linear Mechanics, 67, (2014) 47–51.

Abstract.This study deals with symmetry group properties and conservation laws of an extended Kudryashov– Sinelshchikov (K–S) equation in the bubbly liquid. We study Lie symmetries, symmetry reductions and exact solutions of the non-linear wave equation. By applying a direct method the local conservation laws associated to the (K–S) equation are also obtained.

N.Nadjafikhah, A. Mokhtary, "Symmetry analysis of Black-Sholes equation with small volatility and rate of return", Journal of Interpolation and Approximation in Scientific Computing, Volume 2014, Year 2014 Article ID jiasc-00054.

Abstract. In this paper, we present approximate symmetries of the Black-Scholes equation for small values of volatility and rate of return parameters. A novel method for obtaining the approximate symmetry of a singularly perturbed partial differential equation (PDE) is introduced. Further, we compute the optimal system in the singular case. Finally, by combining two methods, a new approach that calculates the approximate generators for admitted Lie groups of asset price is provided.

N. Nadjafikhah, M. Hesamiarshad, "Analysis of the symmetries and conservation laws of the nonlinear Jaulent-Miodek equation", Abstract and Applied Analysis, Vol. 2014, Article ID 476025. (Collabrated by M. Hesamiarshad)

Abstract.Lie symmetry method is performed for the nonlinear Jaulent-Miodek equation. We will find the symmetry group and optimal systems of Lie subalgebras. The Lie invariants associated with the symmetry generators as well as the corresponding similarity reduced equations are also pointed out. And conservation laws of the J-M equation are presented with two steps: firstly, finding multipliers for computation of conservation laws and, secondly, symbolic computation of conservation laws will be applied.

N.Nadjafikhah, K.Goodarzi , "λ-symmetry and λ-conservation law for the extended

public-key cryptosystem, Information sciences, Volume 294, 2015, pp. 31-40.

Abstract:We shall propose two new efficient verifiable multi-secret sharing schemes based on linear feedback shift register (LFSR) public key and new nonhomogeneous linear recursions. Compared with previous schemes, these schemes have better performance and shorter private/public key length. Moreover, they have fewer public values and simpler construction, as well as various methods for the reconstruction phase. Altogether, they are easy to use and provide great capabilities for many applications.

❖گروه هندسه:

VahidParvaneh, PeymanSalimi, Pasquale Vetro, Akbar DehghanNezhad, StojanRadenović, "Fixed point results for $GP_{(\Lambda,\Theta)}$-contractive mappings", J. Nonlinear Sci. Appl. 7 (2014), 150-159.

Abstract.In this paper, we introduce new notions of GP-metric space and $GP_{(\Lambda,\Theta)}$-contractive mapping and then prove some fixed point theorems for this class of mappings. Our results extend and generalized Banach contraction principle to GP-metric spaces. An example shows the usefulness.

N. Nadjafikhah, O.Chekini "Invariant solutions of Barlett and Whitaker's equations", Malaya J. Mat. 2(2)(2014) 103-107.

Abstract. Lie symmetry group method is applied to study the Barlett and Whitaker's equations. The symmetry group and its optimal system are given,and group invariant solutions associated to the symmetries are ob- tained. Finally the structure of the Lie algebra symmetries is determined.

N.Nadjafikhah, R. Dastranj, "Symmetry analysis and conservation laws of an extended Kudryashov-Sinelshchikov equation in a liquid

invariance properties of the conserved flows with respect to the Lie point symmetry generators are investigated via the symmetry action on the multipliers. Furthermore, the similarity reductions and some exact solutions are provided.

mKdVequation", Journal of Nonlinear Mathematical Physics, Volume 21, Issue 3, 2014.

Abstract.In this paper, we obtain μ-symmetry and μ-conservation law of the extended mKdV equation. The extended mKdV equation dose not admit a variational problem since it is of odd order. First we obtain μ-conservation law of the extended mKdV equation in potential form because it admits a variational problem, using it, we can obtain μ-conservation law of the extended mKdV equation.

N.Nadjafikhah, R. Bakhshandeh-Ch, " Theequivariant moving frame method of third order differential equations" , Bull. Malays.Math.Sci. Soc. (2) 37(2), pp. 487–498, 2014.

Abstract. This paper is devoted to apply the equivariant moving frame method to study the local equivalence problem of third order ordinarily differential equation under the pseudo- group of fiber preserving transformations.

N.Nadjafikhah, N.Asadi, "Geometric structure and some exact solutions of Plateau equation" , Physical Science International Journal, 4(5): 692–698, 2014.

Abstract.In this paper, we get the set of symmetry of Plateau differential equation. Using Lie symmetry method to obtain the classical symmetry operators. Also, we get one-dimensional optimal system of the Plateau equation and reduction Lie invariants, corresponding to infinitesimal symmetries.

N.Nadjafikhah, V. Shirvani-Sh, "Conservation laws and exact solutions of the Whitham-type equations", Commun Nonlinear SciNumerSimulat, 19, pp. 2212–2219, 2014.

Abstract. In this paper, we study conservation laws for some partial differential equations. It is shown that interesting conserved quantities aries from multipiliers by using homotopy operator that is a powerful algorithmic tools. Furthermore, the

❖ **رساله های دفاع شده در مقطع دکتری**

✓ سمیه خلاشی قزل احمد، دانش آموخته آبان ۹۳.

عنوان رساله دکتری:

گراف اشتراکی زیر مدول های یک مدول

(Intersection Graph of Submodules of a Module)

استاد راهنما: دکتر حمید تولایی

مدارج تحصیلی:

کارشناسی ریاضی محض از دانشگاه شریف، کارشناسی ارشد ریاضی محض از دانشگاه علم و صنعت ایران

چکیده رساله:

ترکیبیات جبری شاخه ای از ریاضیات است که با بکارگیری شیوه های جبری به حل مسائل مختلف ترکیبیاتی میپردازد و بالعکس از شیوه های ترکیبیاتی برای حل مسائل جبری بهره میگیرد. در این رساله گراف اشتراکی زیر مدول های یک مدول مورد مطالعه قرار گرفته است.

مقالات مستخرج از رساله:

1. S.Akbari , H.A Tavallaee and S.KhalashiGhezelahmad, Intersection Graph of Submodule of a Module, Journal of Algebra and its application,

1. (2012) 1250019-1-12500198. (First rank among all most downloaded papers)

2. S.Akbari , H.A. Tavallaee and S.KhalashiGhezelahmad, on the complement of the intersection Graph of submodules of a module, journal of algebra and its applications (to appear).

✓ آرزو حاج رجبی ، دانش آموخته آبان ۹۳.

عنوان رساله ی دکتری :

تحلیل مدلهای فضای وضعیت وکاربردهای آن در مسائل مهندسی و مالی

(Analysis of state space models and their applications in engineering and financial issues)

استاد راهنما: دکتر رحمان فرنوش

مدارج تحصیلی:

کارشناسی آمار از دانشگاه بین المللی امام خمینی(ره)، کارشناسی ارشد آمار دانشگاه علم و صنعت ایران.

چکیده ی رساله:

برازش یک مدل مناسب به داده های سری زمانی به منظور پیش بینی برای پیشامدهایی که در آینده رخ می دهند همواره از اهمیت بسزایی برخوردار بوده است، تا جایی که به دست آوردن متغیر پنهان در این

مدلها با استفاده از معادلات پالایش و نیز برآورد پارامترهای نامعلوم از روشهای کلاسیک و بیزی مورد توجه محققان بسیاری قرار گرفته شده است.

در این راستا مطالعات زیر انجام شده است:

۱- ارائه دو مدل کاربردی مدارهای الکتریکی در مهندسی الکترونیک به بررسی معادلات پالایش بهینه، هموارسازی و برآورد پارامترهای نامعلوم مدل از دو دیدگاه کلاسیک و بیزی.

۲- تجزیه و تحلیل مدل فضای وضعیت با در نظر گرفتن وابستگی بین نوفه های وضعیت و به دست آوردن فرم بسته جواب برای معادلات پالایش، پیش بینی و هموارسازی و علاوه بر آن در نظر گرفتن مدل فضای وضعیت با فرض نامعلوم و غیر خطی بودن تابع میانگین مدل اندازه و برآورد این تابع از روش نیمه پارامتری و در نظر گرفتن نوفه تلاطم تصادفی و برآورد متغیر پنهان از روشهای پالایش بهینه.

۳- معرفی مدل خطای ضربی فرایندهای با مقادیر مثبت، برآورد روند بلند مدت این متغیرها توسط روش درستنمایی ماکسیمم و نیز مدل بندی این مدلها توسط فرم فضای وضعیت به همراه مثال کاربردی.

مقالات مستخرج از رساله:

1. R. Farnoosh, A. Hajrajabi, Hidden State Estimation in the State Space Model with First-Order Autoregressive Process Noise, Iran J SciTechnol A, 38A3 (2014) , 321-327.

2. R. Farnoosh, A. Hajrajabi, Estimation of Parameters in the state space model of stochastic RL electrical circuit,Compel, 32(2013), 1082 - 1097.

3. R. Farnoosh, P. Nabati ,A. Hajrajabi, Parameters Estimation for RL Electrical Circuits based on Least Square and Bayesian pproach, Compel, 31(2012),1711 – 1725.

4. Z. Rahnamaei , N. Nematollahi , R. Farnoosh , A. Hajrajabi , A Family of Skew – Slash Distributions and Estimation of Its Parameters via an EM algorithm, JIRSS, 12 (2013) , 271-291.

✓ **علی براتی، دانش آموخته آذر ۹۳.**

عنوان رساله :

بررسی قابلیت روش سینک برای حل پاره ای از معادلات دیفرانسیل با مشتقات نسبی

(Inverstigation of capability of sinc method for solving some partial differential equations)

استاد راهنما: دکتر جلیل رشیدی نیا

مدارج تحصیلی:

کارشناسی ریاضی محض از دانشگاه رازی کرمانشاه، دانش آموخته ممتاز کارشناسی ارشد ریاضی کاربردی از دانشگاه رازی کرمانشاه.

❖ پایان نامه های دفاع شده در دوره کارشناسی ارشد:

قالب ارائه : (نام دانشجو، استاد راهنما، عنوان پایان نامه، زمان دفاع)

۱. شکیبا عباسی، دکتر یاری ، کاربرد آنتروپی در رمزنگاری ، ۱۳۹۳/۸/۲۰.

۲. پریا ترابی، دکتر یاری ، برآورد پارامتر های وایبل اصلاح شده با کولبک لیبلر با استفاده از توابع بقا، ۱۳۹۳/۸/ ۰۵.

۳. سمیرا زینلی پور، دکتر نجفی خواه، الگوریتمی برای محاسبه ی ناورداهای دیفرانسیل گروه های تقارنی معادلات دیفرانسیل، ۱۳۹۳/۸/۱۹.

۴. ابوذر دست پاک، دکتر نجفی خواه، هندسه زیر منیفلد های با تقارن حداکثر، ۱۳۹۳/۸/۱۹.

۵. نجمه شفیعی، دکتر نجفی خواه، هندسه ی آفین، شار منحنی و تقریبات عددی ناوردا، ۱۳۹۳/۸/۲۵.

۶. معصومه خداوردی، دکتر نجفی خواه، منیفلد های سه بعدی با انحنای ریچی مثبت، ۱۳۹۳/۸/۲۵.

۷. مهتاب میر کوشش، دکتر گلبابایی، حل معادلات دیفرانسیل جزیی به روش

چکیده رساله:

در این رساله به حل معادلات مشتقات جزئی سهموی از نوع آشفته منفرد با استفاده از تقریب سینک پرداخته میشود.

در این پایان نامه روش سینک گالر کین و روش هم محلی سینک را در جهت مکان به ترتیب برای مسائل خطی و مسائل غیر خطی سهموی یک بعدی وابسته به زمان از نوع وابسته به زمان از نوع آشفته منفرد به کار گرفته ایم.

از عمده کارهای مهم در این رساله بررسی آنالیز همگرایی روش سینک گالرکین و روش هم محلی سینک برای تمام معادلات ذکر شده میباشد این آنالیز خطا معمولا در تمامی حالت ها بصورت نمایی بدست آمده است.

مقالات مستخرج از رساله:

1. JalilRashidinia, Ali Barati, M.Nabati, Application of Sinc – Galerkin method to singularly perturbed parabolic convection-diffusion problemsNumber Algor. DOI 10.1007/s 11075-013-9752-5

2. J.Rashidinia, A.Barati, Numerical solutions of one-dimensional non-linear parabolic equations using Sinc collection method.Ain Shams Engineering Jornal,In press.

3. J.RASHIDINIA, A.BARATI , NEW APPROACH TO THE SOLUTIONS OF THE PIB EQUATION, TWMS J.App. Eng .Math. V.1,N.1,2011,pp. 35-40

پتروگالرکین بدون شبکه محلی ، ۱۳۹۳/۸/۱۰.

۸. راحله صالحی، دکتر رشیدی نیا، عنوان پروژه: تقریب مساله ی رایله استوکس با مشتقات کسری مبنی بر تابع سینتیک و توابع پایه شعاعی و روند تفاضلات متناهی فشرده، ۱۳۹۳/۸/۲۶.

۹. مرجان یعقوبی، دکتر یاری، تعیین تابع ریسک با استفاده از ماکسیمم آنتروپی، ۱۳۹۳/۸/۰۵.

۱۰. فرشید اژدر، دکتر یاری، برآورد احتمال های انتقال در فرایند های تصادفی پیوسته، ۱۳۹۳/۹/۱۵.

۱۱. فرانک غلامپور، دکتر رشیدی نیا، حل مسائل مقادیر ویژه در معادلات با مشتقات جزیی با استفاده از روش های مبتنی بر توابع پایه شعاعی، ۱۳۹۳/۸/۲۸.

۱۲. فاطمه حمیدی، دکتر مشهدی، طرح تسهیم چند راز خطی بر اساس محاسبات چند بخشی، ۱۳۹۳/۸/۲۷.

۱۳. الهام چمنی، دکتر هادیان، بررسی حملات خطی و تفاضلی در رمز های فیستل، ۱۳۹۳/۷/۲۹.

۱۴. نیلوفر محمدی، دکتر رشیدی نیا، کاربرد چند جمله ای های لاگوربرای تقریب جواب پدیده انتشار موج ، ۱۳۹۳/۸/۲۴.

۱۵. پریسا قدس، دکتر گلبابایی، حل معادلات دیفرانسیل با مشتقات جزیی به روش المان آزاد گالرکین، ۱۳۹۳/۸/۱۰.

۱۶. امید عادلی، دکتر نجفی خواه، توصیف هندسی تحول خم و مجموعه های تراز، ۱۳۹۳/۸/۲۸.

۱۷. محمد پاک نژاد، دکتر نجفی خواه، عنوان پروژه: بررسی معادله ی هانتر-ساکستن در هندسه، ۱۳۹۳/۸/۱۹.

۱۸. مهدی گیلک، دکتر نجفی خواه، فضا زمان شوارتز شیلد، ۱۳۹۳/۸/۱۹.

۱۹. فیروزه شاهری، دکتر علائیان، کد های تام در گراف ها، ۱۳۹۳/۸/۲۴.

۲۰. شقایق رحمنی، دکتر علائیان، کد های سه تایی ب تام با وزن ثابت، ۱۳۹۳/۸/۱۰.

۲۱. رامین شاه ولی، دکتر علائیان، کد های تام در حاصلضرب گرف ها، ۱۳۹۳/۸/۲۴.

۲۲. کسری عیسی پور، دکتر نیک آزاد ، برونیابی و شتاب موضعی در روش های تکراری برای مسائل نقطه ثابت مشترک، ۱۳۹۳/۹/۲۶.

۲۳. احسان کرمی، دکتر آقاجانی، اصل تغییراتی اکلند و کاربردها، ۱۳۹۳/۱۰/۳۰.

۲۴. معصومه خلوجینی، دکتر فرنوش، بررسی مدل پایه بوت استرپ با داده های پاسخ دودویی گمشده، ۱۳۹۳/۱۱/۴.

۲۵. المیرا کریمی، دکتر فرنوش، مدل های گارچ چند متغیره و کاربرد های آن، ۱۳۹۳/۱۱/۴

۲۶. محمد رضا اسمعیلی، دکتر فرنوش، مدل های آمیخته خطی برای تحلیل داده های طولی، ۱۳۹۳/۱۱/۴.

❖ فعالیت های علمی نهاد های دانشجویی:

بزرگداشت دهه ریاضیات (دهه اول آبان)

دهه اول آبان هر سال از طرف انجمن ریاضی ایران دهه ریاضیات نامیده شده است که انجمن های علمی و مراکز دانشگاهی ریاضی با برنامه های مختلف در این دهه سعی بر شناساندن گوشه ای از جذابیت ها و شگفتی های دنیای ریاضی می نمایند. موارد زیر از برنامه های برگزار شده در این دهه از سوی انجمن علمی دانشکده می باشد:

- **برگزاری مسابقه ی سودوکو** ۳ آبان
- اکران مستند هندسه ۴ آبان
- اکران فیلم ذهن زیبا ۵ آبان
- مسابقه ی ریاضی ۶ آبان .

- **اردوی علمی** بازدید از پژوهشگاه دانش های بنیادی (IPM)، ۱۷ آذر

این برنامه با شرکت بیش از ۳۰ نفر از دانشجویان مقطع کارشناسی و همراهی دکتر سعیدی نژاد برگزار شد. دکتر پورمهدیان (رئیس پژوهشکده ریاضی) و دکتر افتخاری (معاون پژوهشکده) که از برترین محققان کشور در حوزه ریاضیات نیز می باشند، در گفتگویی صمیمی با دانشجویان ضمن معرفی پژوهشگاه و ظرفیت های پژوهشی آن برای دانشجویان تحصیلات تکمیلی، به چگونگی تحصیل در رشته ریاضی و لزوم تحصیل در ان به عنوان یک

رشته راهبردی و سرمایه ای برای کشور پرداختند. گفتنی است این گفتگو بسیار مورد توجه و استقبال دانشجویان قرار گرفت.

- **برگزاری سمینارهای تخصصی** ریاضی با حضور اساتید مدعو از سایر دانشگاه ها و مراکز

انجمن علمی در سال تحصیلی جاری تاکنون موارد زیر را برگزار نموده است.

۱- سمینار توپولوژی (Thuarston 's Theory of Circle PackingsGrotendieck 's Theory of dessinsd'enfants)، دکتر علی کمالی نژاد، ۲۴ آذر.

۲- سمینار منطق ریاضی، دکتر صالح علی یاری (از اعضای پسا دکتری IPM)، ۱ دی ۹۳.

❖ **سایرفعالیت های پژوهشی:**

مدرسه زمستانی آنالیز وPDE

(Winter school on Analysis and PDE)

گروه آنالیز دانشکده ریاضی دانشگاه علم وصنعت ایران، به منظور تعمیق وگسترش آموزشِ پژوهش محور، درحوزه آنالیزو معادلات دیفرانسیل بامشتقات جزئی، سلسله جلساتی را در قالب یک دوره، با عنوان مدرسه زمستانی طرح ریزی نمود. این برنامه به صورت عمومی در تارنمای دانشکده انعکاس یافت و پوستر های تبلیغاتی آن برای دانشگاه های تهران و برخی از مهمترین دانشگاه های کشور ارسال گردید.

ثبت نام دوره به صورت رایگان و طی ارسال فرمی الکترونیک به آدرس (ws_analpde@iust.ac.ir) انجام گرفت.

این دوره در قالب ۸ جلسه در دی و بهمن ماه ۹۳ برگزار شد، که با استقبال خوبی در نوع خود مواجه شد. چگونگی ارائه بحث ها در این دوره به صورت کارگاهی و با رویه آموزشی بود که در پایان دوره نیز مروری بر پژوهشهای روز دنیا انجام شد و در پایان به شرکت کنندگان فعال گواهی نامه حضور در دوره اعطا گردید.

کمیته برگزاری: دکتر سمیه سعیدی نژاد (دبیر برگزاری)، دکتر محمد باقر قائمی، دکتراسدالله

آقاجانی، دکتر عبدالرحمن رازانی (دانشگاه بین المللی امام خمینی و پژوهشگاه دانشهای بنیادی).

مباحث بحث شده دراین دوره:

1. An introduction to Sobolev spaces
   (۲ جلسه، ارائه توسط دکتر سعیدی نژاد)

2. Minimization techniques in existence results of PDE

   (۲ جلسه، ارائه توسط دکتر رازانی)

3. Application of Fredholm operator theory in PDE

   (۲ جلسه، ارائه توسط دکتر قائمی)

4. Stable solution of semilinear elliptic PDE

   (۲ جلسه، ارائه توسط دکتر آقاجانی)

آمار شرکت کنندگان در دوره:

مجموع ثبت نام ها: ۴۶ نفر

مجموع شرکت کنندگان: ۴۰ نفر

درصد شرکت کنندگان غیر علم و صنعتی: ۵۰ درصد.

❖ خبرهایی از سایر مراکز ریاضی:

همایش مرزهای علوم ریاضی (۸ – ۱۱ دی ماه)

در واپسین روزهای فصل پاییز و در اوایل دی ماه نه چندان سرد سال جاری یکی از بزرگترین و مهمترین کنفرانس های ریاضیات به میزبانی دانشگاه صنعتی شریف و با همکاری پژوهشگاه دانش های بنیادی برگزار شد.

این سمینار در روزهای ۸ تا ۱۱ دی ماه و در ساختمان فرمانیه ی پژوهشگاه دانشهای بنیادی و با محوریت موضوعات مختلف از جمله نظریه اعداد با حضور اساتید بزرگ و صاحب نامی همچون دکترفریدون شهیدی و دکتر رویا بهشتی زواره، آنالیز و معادلات دیفرانسیل با مشتقات جزئی با حضور دکتر کاویان، دکتر تحویلدارزاده ، دکتر فضلی، هندسه و سیستم های دینامیکی با حضور دکتر علی تهذیبی و موضوعات جبری همچون گراف و ... با حضور دکتر حسین حاجی ابوالحسن و سایر شاخه های ریاضیات و همچنین با حضور و سخنرانی دکتر محمد مهدیان و دکتر وهاب میررکنی از شرکت گوگل برگزار شد.

در طی سخنرانی ها جدید ترین موضوعات و مباحث در سطح جامعه ی ریاضیات طرح شد و مورد بحث قرار گرفت و علاوه بر تبادل اطلاعات در پایان برخی سخنرانی ها، مسائل باز و موضوعات جدید در هر شاخه ی ریاضیات مطرح شد.

کنفرانس با حضور و سخنرانی دکتر محمدجواد لاریجانی ، ریاست پژوهشگاه دانش های بنیادی، آغاز شد. پس از آن دکتر فریدون شهیدی به عنوان اولین سخنران سومین کنفرانس مرزهای علوم ریاضی به سخنرانی با

❖ خبرهای کوتاه:

– ازپاییز ۹۳ دکتر آقاجانی پژوهشگر مقیم مرکز تحقیقات فیزیک نظری و ریاضیات می باشند.

– تابستان گذشته دکتر آقاجانی به مدت ۴۵ روز مهمان برنامه علمی:

Free boundary problems and related topics

مؤسسه اسحاق نیوتن برای علوم ریاضی در انگلیس بودند.

– تابستان گذشته دکتر قائمی جهت انجام کار پژوهشی با پروفسور سان یانگ جانگ به مدت یک ماه مهمان دانشگاه Ulsan در کره بودند. در این سفر یک ارائه سخنرانی با موضوع:

Pseudo-differential operators

در دانشگاه Ulsanداشتند و همچنین یک سخنرانی با عنوان:

Stability offunctional equations in non-Archimedean spaces

در کنفرانسی که در شهر KyungJu کره برگزار شد،ارائه نمود.

موضوع بررسی حدسی از راموناجان پرداخت، سپس سایر سخنرانی ها توسط اساتید مهمان با موضوعاتی همچون:

1.Unitary representations of Lie supergroups and unitary Lie superalgebras

2.Sudoku rectangle completion

3.On the altermatic number of Graphs

4.Constrast between topological and metric properties of Foliation

5.A novel quantum-mechanical interpretation of the Dirac Equation

6.On local and nonlocal elliptic PDEs

7. Moduli spaces of Rational curves on Varieties

8.On some inverse problems arising in PDEs

9.Uniform Differentiation of real and Complex Lipschitz Functions

10.RenormalizedComposable Core-sets for Distributed Computation

و... بسیاری موضوعات دیگر از جمله ارتباط ریاضیات با علومی همچون کامپیوتر، همچنین تازه ترین پیشرفت ها و مباحث در خصوص دروسی همچون آنالیز ریاضی مقدماتی تا موضوعات بسیار پیشرفته در حوزه ها و شاخه های مختلف ریاضیات محض و کاربردی در طی ۴روز و ۳۳ سخنرانی مورد بحث قرار گرفت.

در روز پایانی و در اختتامیه ی سمینار میزگردی با حضور اساتید و دانشجویان شرکت کننده پیرامون روش های پژوهش و نقش آموزش در پژوهش تشکیل شد، که در آن با اشاره به توان علمی بالای دانشجویان بر داشتن پشتکار، تلاش و انگیزه تاکید شد.

این سمینار را می توان از مهمترین سمینار های ریاضی سال جاری دانست، چرا که با حضور گسترده ی اساتید بزرگ ایرانی در خارج و داخل کشور برگزار گردید و به موضوعات اساسی در زمینه های مختلف ریاضیات پرداخته شد و می توان گفت نقش بسیار مهمی در تبادل اطلاعات علمی- پژوهشی و آشنایی با موضوعات مختلف و جدید ایفا کرد. علاوه بر این برای آشنایی بیشتر شرکت کنندگان دوره های کوتاه درسی پیش و پس از سمینار با حضور گسترده ی دانشجویان و شرکت کنندگان توسط اساتید مدعو سمینار از جمله دکتر فریدون شهیدی، دکتر علی تهذیبی، دکتر اسماء حسن زاده، دکتر علی عنایت و.... در دانشگاه صنعتی شریف و پژوهشگاه دانشهای بنیادی برگزار شد. علاوه بر این در راستای سمینار کارگاه یک روزه ای با موضوع الگوریتم نظریه ی بازی ها توسط دکتر مهدیان و دکتر میررکنی از شرکت گوگل در دانشگاه صنعتی شریف برگزار شد. برای اطلاعات بیشتر در زمینه ی همایش و همچنین موضوعات مطرح شده در سمینار می توان به سایت همایش یا سایت پژوهشگاه دانشهای بنیادی مراجعه نمود.