Strategic sensors and regional observation in Neumann boundary conditions

Conference Paper · November 2009

1 author:

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Tikrit University
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Project   Control Systems and Analysis View project

KURDISTAN REGION-IRAQ
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
SALAHADDIN UNIVERSITY/ERBIL
COLLEGE OF SCIENCE
DEPARTMENT OF MATHEMATICS

UNDER THE SLOGAN
(WITH SCIENCE, WE BUILD CIVIL SOCIETY)

THE DEPARTMENT OF MATHEMATICS - COLLEGE OF SCIENCE
SALAHADDIN UNIVERSITY/ERBIL IS HOLDING A CONFERENCE:

THE FIRST IRAQI - FRENCH MATHEMATICS CONFERENCE IN COOPERATION WITH COLLEGE OF SCIENCE SALAHADDIN UNIVERSITY-ERBIL

2009

14 to18

NOVEMBER

The conference will be under the auspices of the two main French mathematical societies : SMF and SMAI

HAWLER - KURDISTAN REGION - IRAQ

Ladies and Gentleman,
Good Morning

On behalf of the organizing committee of the (**First Iraqi-French Mathematics Conference in Cooperation with College of Science, Salahaddin University- Erbil**), it is a great pleasure to welcome all of you to this conference.

This is the first Iraqi-French conference in Mathematics to be held in Kurdistan Region-Iraq. We hope it will not be the only one.

The idea of the conference has come out during the visit of Professors Michel Waldschmidt and Mohamad Eftikhari to our department on October 2008 and in coordination with the French Embassy in Baghdad represented by the previous Canceller Mr. Claude POULET.

Many thanks due to Professor Michel Waldschmidt the director of CIMPA for his great efforts to make this conference possible.

Also, we would like to express our deep thanks to our distinguished colleagues and visitors who have made this meeting possible. We hope that this meeting will contribute to the development of research in mathematics and enhance communication with our colleagues throughout the world.

Apart from the scientific programs, we encourage you to take advantage of the social programs during the conference to make new friends and renew old friendships. You can also enjoy the atmosphere of Kurdistan and find the staff members of Salahaddin University friendly and cooperative and this meeting will serve as a small step in the promotion of international understanding as well.

We would like to mention that the total number of the participants is **166** (**144** from Iraq, **11** from France, **8** from Iran and **1** from each of Jordan, UK and UAE). Among them **15** distinguished speakers and **62** researchers will present their research papers.

We would like to thank the sources who donated to the conference, among them the Ministry of Higher Education and Scientific Research in Kurdistan Region- Iraq and the French Embassy in Baghdad.

We are sure that all of you will have pleasant and exciting experiences coming to Kurdistan.

We wish you a very happy conference.

Thank you

Herish O. Abdullah
Chairman of the Organizing Committee
November 14, 2009

Information for Participants
Accommodation and Meals

For the invited guests, accommodation is provided at
1. **Ava Shen hotel.**
2. **Monaco Palace hotel.**
3. **Avesta hotel.**

Please, check the web site to know in which hotel you will stay. Lunch is served in the Cultural Center Building (CCB) of Salahaddin University from 12:30 to 2:00 PM for the days14th, 15th , 16th of Nov.2009. On the 17th of Nov.2009 the lunch will be served at College of Science. Please, keep lunch coupons handy at lunch time.

Lecture Halls

All the lectures will take place in the main hall of the CCB for the days 14th.15th and morning of 16th of Nov.2009. On the 16th afternoon and morning of 17th the lectures will take place at the College of Science in four different halls at the same time. The closing session of the conference will take place in the main hall of the CCB in the afternoon of the day 17th of Nov.2009.

Computer Facility

Internet browsing facility will be available for the participants in Computer Room on the first floor of the CCB.

Breaks

Tea, coffee and other goodies will be served every morning from 11:00 to 11:30 and every afternoon from 4:00 to 4:30

The Conference dinner

The dinner is at 7:00_9:00 PM at certain restaurants .This will be announced daily.

Excursion in Erbil

There will be an excursion for the participants and their companion on Wednesday the 18th of November 2009. This excursion will be at a beautiful tourist area outside Erbil city. The fee for this excursion would be $50 per Pearson .This will cover the transportation and meals. Those interested parties should pay the excursion fees in the time of registration.

Best Regards
The Organizing Committee

Statistical Information of the participants

No. of Registered Inside Iraq			No. of Registered Outside Iraq		
139			**23**		
City	**University**	**No. of Reg.**	**Country**	**University**	**No. of Reg.**
Erbil	Univ. of Salahaddin	32	**France**	Different Univ.'s	11
Baghdad	Univ. of Baghdad	**26** 68	**Iran**	Univ. of Kurdistan, Sanandaj	**6** 8
	Al-Mustansiriya Univ.	**34**		Az-Zahra Univ.	**1**
	Al-Nahrain Univ.	**8**		Urmia University, Urmia	**1**
Sulaimani	Univ. of Sulaimani	4	**Yemen**	University of Taiz	1
Muthana	AL-Muthana Univ.	2	**Jordan**	The Arab Aca. For Fana. Sci.	1
Koya	Koya Univ.	4	**U.K**	Buckingham Univ.	1
Tikrit	Tikrit Univ.	8	**UAE**	Ajman Univ.	1
Alanbar	Univ. of Alanbar	2			
Mosul	Univ. of Mosul	7			
Thi-Qar	Univ. of Thi-Qar	4			
Babylon	Babylon Univ.	3			
AL-Qadisya	Univ. of AL-Qadisya	1			
Dohuk	University of Dohuk	1			
Kirkuk	Univ. of Kirkuk	2			
Kuffa	Univ. of Kuffa	1			

Organizing and Scientific Committees

Organizing Committee

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- **Didier Robert** (University of Nantes, France)
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- **Michel Waldschmidt** (University of Paris 6, France)
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- **Basil Al-Hashimi** (University of Baghdad, Iraq)
- **Nazar Hamdoon Shuker** (The Arab Academy for Financial Science, Jordan)
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The Following Sources Financially Supported the Conference

Ministry of Higher Education in Kurdistan Region-Iraq

CIMPA Organization

Ministry of Planning in Kurdistan Region-Iraq

French Embassy in Baghdad

KURD Institute de Paris

Presidency of the Salahaddin University/Erbil

Deanery of the College of Science/ Salahaddin University

Deanery of the College of Science Education / Salahaddin University

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Scientific Program

Speakers

- **Abbas Yunis Al-Bayatti,** College of Computers Sciences and Mathematics-University of Mosul, Iraq. *E-mail: profabbasalbayati@yahoo.com*
- **Alain Damlamian**, http://perso-math.univ-mlv.fr/users/damlamian.alain/
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- **Pierre Cartier**, http://www.ihes.fr/~cartier/
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- **Rostam K. Saeed**, Department of Mathematics -College of Science, Salahaddin University/Erbil, Kurdistan Region, Iraq. *E-mail:rostamkarim64@uni-sci.org*
- **Sabbah A Jassim**,
  http://www.buckingham.ac.uk/appliedcomputing/aboutdept/staff.html
  E-mail:sabah.jassim@buckingham.ac.uk

Chairs of Sessions

Time	Chair
Saturday, November 14, 2009	
Morning Session (Speakers of the Conference)	
10:00AM-12:30PM	**Sami D. Gabbara,** *Salahaddin University / Erbil, Kurdistan Region Iraq*
Afternoon Session (Speakers of the Conference)	
2:00PM-5:30PM	**Michel Waldschmidt,** *University of Paris 6, France*
Sunday, November 15, 2009	
Morning Session (Speakers of the Conference)	
9:00AM-12:30PM	**Nzar Hamdoon Shuker,** *The Arab Academy for Financial Science, Jordan*
Afternoon Session (Speakers of the Conference)	
2:00PM-5:30PM	**Mohammad Eftekhari,** *University of Picardie, France*
Monday, November 16, 2009	
Morning Session (Speakers of the Conference)	
9:00AM-12:30PM	**Pierre Cartier,** *Http://www.ihes.fr/~cartier*

Monday, November 16, 2009			
Afternoon Sessions for Papers			
Time			
Session A: Chairs	**Session B: Chairs**	**Session C: Chairs**	**Session D: Chairs**
2:30PM-4:05PM	**2:30PM-4:05PM**	**2:30PM-4:05PM**	**2:30PM-4:05PM**
Munir A. Aziz, Al-Mustansiriya University-Iraq. **Sadiq N. Nasir**, University of Baghdad-Iraq.	**Hussein A. Al-Juboury**, Al-Mustansiriya University-Iraq. **Faraidun K. Hama-Saleh**, University of Sulaimani, Iraq.	**Parwen A. Hamadi**, Salahaddin University/Erbil, Kurdistan Region, Iraq. **Haider J. Ali**, Al-Mustansiriya University-Iraq.	**Abbas Y. Al-Bayati**, University of Mosul, Iraq **Ivan S. Latif**, Salahaddin University/Erbil, Kurdistan Region, Iraq.
4:10PM-5:45PM	**4:10PM-5:45PM**	**4:10PM-5:45PM**	**4:10PM-5:45PM**
Arsalan B. Chademan, University of Kurdistan-Sanandaj-Iran. **Yunis J. Yassen**, Tikrit university-Iraq.	**Najmadden A. Sulaiman**, Salahaddin University/Erbil, Kurdistan Region, Iraq. **Nouraddin M. Mohammed**, Salahaddin University/Erbil, Kurdistan Region, Iraq.	**Khidr R. Sharaf**, University of Dohuk, Iraq. **Hersh O. Abdulla**, Salahaddin University/Erbil, Kurdistan Region, Iraq.	**Tariq S. Abdul-Razaq**, Al-Mustansiriya University-Iraq. **Najwa R. Mustafa**, University of Baghdad, Iraq.

Tuesday, November 17, 2009

Morning Sessions for Papers

Time

Session A: Chairs	Session B: Chairs	Session C: Chairs	Session D: Chairs
9:00AM-10:35AM	9:00AM-10:35AM	9:00AM-10:35AM	9:00AM-10:35AM
Nadir G. Mansour, Al-Mustansiriya University-Iraq. **Ibrahim O. Hamad**, Salahaddin University/Erbil, Kurdistan Region, Iraq.	**Sabah jassim**, England **Rostam K. Saeed**, Salahaddin University/Erbil, Kurdistan Region, Iraq.	**Kamaran Divaani-Aazar**, Al-Zahra University-Iran. **Abdulrahman Majeed**, Baghdad University, Iraq.	**Saheb K. Al-Saidy**, Al-Mustansiriya University-Iraq. **Izad Ibrahim**, Salahaddin University/Erbil, Kurdistan Region, Iraq.
11:00AM-12:35PM	11:00AM-12:35PM	11:00AM-12:35PM	11:00AM-12:35PM
Taha H. Jasem, Tikrit university-Iraq. **Arkan J. Mohammed**, Al-Mustansiriya University-Iraq.	**Ahlam J. Khaleel**, Al-Nahrain University, Iraq. **Azher A. Mohammed**, Tikrit university-Iraq.	**Mehdi S. Abbas**, , Al-Mustansiriya University-Iraq. **Abdulla M. Abduljabar**, Salahaddin University/Erbil, Kurdistan Region, Iraq.	**Inaam M. Ali**, University of Baghdad, Iraq. **Radhi A. Zaboon**, , Al-Nahrain University, Iraq.

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Conference Daily Program

Saturday, November 14, 2009

Opening Session

Place: Seminar hall

Location: Cultural Center of the University, in front of Engineering College.

8:15AM- 9:00 AM	Registration
9:00AM-10:00AM	Welcoming talks

Morning Session (*Speakers of the Conference*)

Chair	**Sami D. Gabbara**, *Salahaddin University/Erbil, Kurdistan Region, Iraq*
10:00AM-11:00AM	Combinatorics of polyhedral **Pierre Cartier**, *http://www.ihes.fr/~cartier/*
11:00AM-11:30AM	Coffee Break
11:30AM-12:30PM	Hyperplane arrangements, lower central series and chen lie algebras **Michel Jambu,** *University of Nice Sophia-Antipolis, France*
12:30PM-2:00PM	Lunch at the Cultural Center of the Salahaddin University

Afternoon Session (*Speakers of the Conference*)

Chair	**Michel Waldschmidt**, *University of Paris 6, France*
2:00PM-3:00PM	The human cost of tyranny in iraqi kurdistan: a bayesian dynamic estimation **Jamal Rasul M. Ameen,** *Salahaddin University/Erbil, Kurdistan Region, Iraq*
3:00PM-4:00PM	On parameterized cg with four and five parameters **Abbas Yunis Al-Bayatti,** *College of Computers Sciences and Mathematics - University of Mosul, Iraq*
4:00PM-4:30PM	Coffee Break
4:30PM-5:30PM	An introduction to periodic homogenization: the unfolding approach **Alain Damlamian**, *http://perso-math.univ-mlv.fr/users/damlamian.alain/*
6:00PM-7:00PM	Ceremony of opening French Cultural Center
7:30PM-9:00PM	Dinner

Sunday, November 15, 2009

Place: Seminar hall
Location: Cultural center of the University, in front of Engineering College.

Morning Session (*Speakers of the Conference*)

Chair	Nazar Hamdoon Shuker, *The Arab Academy for Financial Science, Jordan*
9:00AM-10:00AM	Wiener indices and Hosoya polynomials of graphs **Ali Aziz Ali**, *College of Computers Sciences and Mathematics University of Mosul, Iraq*
10:00AM-11:00AM	On the non-randomness of modular arithmetic progressions: a solution to a problem by V. I. Arnold **Brigitte Vallée**, *http://users.info.unicaen.fr/~brigitte/*
11:00AM-11:30AM	Coffee Break
11:30AM-12:30PM	Mathematically based computational techniques and tools for face recognition **Sabbah A Jassim**, *http://www.buckingham.ac.uk/appliedcomputing/aboutdept/staff.html*
12:30PM-2:00PM	Lunch at the Cultural Center of the Salahaddin University

Afternoon Session (*Speakers of the Conference*)

Chair	Mohammad Eftekhari, *University of Picardie, France*
2:00PM-3:00PM	Parallel block methods for solving initial value problems **Bashir Khalaf**, College of Education- University of Mosul, Iraq
3:00PM-4:00PM	Measures of pseudorandomness for finite binary sequences **Christian Mauduit**, *http://iml.univ-mrs.fr/editions/biblio/bib-mauduit.html*
4:00PM-4:30PM	Coffee Break
4:30PM-5:30PM	Zero divisor graphs over commutative rings **Nazar Shuker**, *The Arab Academy for Financial Science- Jordan*
5:30PM-6:30PM	Non-linear eigenvalue problems **Fatima M. Aboud**, *University of Nantes, France.*
7:00PM-9:00PM	Dinner

Monday, November 16, 2009

Place: Seminar hall
Location: Cultural center of the University, in front of Engineering College.

Morning Session (*Speakers of the Conference*)

Chair	**Pierre Cartier**, *http://www.ihes.fr/~cartier/*
9:00AM-10:00AM	Torus-based cryptography **Mohammad Eftekhari**, *University of Picardie, France*
10:00AM-11:00AM	Higher order iterative methods for solving nonlinear equations f(x)=0 **Rostam K. Saeed**, *College of Science, Salahaddin University /Erbil, Iraq*
11:00AM-11:30AM	Coffee Break
11:30AM-12:30PM	Discrete curvatures and geometric modeling **Jean-Louis Maltret**, *http://lumimath.univ-mrs.fr/~jlm/*
12:30PM-2:00PM	Lunch at the Cultural Center of the Salahaddin University

Monday, November 16, 2009

Afternoon Sessions

Session A for Papers

Place: Seminar Hall/Chemistry department
Location: College of Science.

Chairs	**Munir A. Aziz**, *Al-Mustansiriya University-Iraq.* **Sadiq N. Nasir**, *University of Baghdad-Iraq.*
2:30PM-2:50PM	Simply irresoluteness and almost simply continuity **Adea K. Al- Obiadi** *Department Of Mathematics-College of Basic Education/Al-Mustansiriyah University,Iraq.*
2:55PM-3:15PM	On the subspace $X(\lambda)$ of entire functions of several complex variables **Mushtaq S. Al-Shaibani** *Department of Mathematics-College of Science-Mustansiriyah University, Baghdad, Iraq*
3:20PM-3:40PM	Pre-contra-semi-continuity and semi-contra-pre-continuity in intuitionistic topological spaces **Taha H. Jasem and Samer R .Yaseen** *Department of Mathematics - College of Science- Tikrit University, Iraq.*
3:45PM-4:05PM	On s*-separation axioms **Anmar H. AL-Sheikly and Arkan J. Mohammed** *Mathematics Department -College of Science -AL-Mustansiriah University, Baghdad-Iraq.*
Chairs	**Arsalan B. Chademan**, *University of Kurdistan-Sanandaj-Iran.* **Yunis J. Yassen**, *Tikrit university-Iraq.*
4:10PM-4:30PM	Convergence characterization of proper mapping **Murtada J. Shnawa and AL Atar, A.B** *Department of Mathematic-College Of Science -Al Mustansirayah University, Iraq.*
4:35PM-4:55PM	Strong and weaker forms of M-Lindelof spaces **Haidar J. Ali** *Department of Mathematic-College Of Science -Al Mustansirayah University, Iraq.*
5:00PM-5:20PM	Two strong forms of semi-regular and semi-normal spaces **Abdullah M. Abdul-Jabbar** *Department of Mathematics, College of Science, University of Salahaddin-Erbil, Iraqi Kurdistan Region.*
5:25PM-5:45PM	On fuzzy β-separated ***Nadir G. Mansour; *Munir A.Aziz * and **Shadman R. Karim** * *Al-Mustansiriya University-College of Education- Department of Mathematics, Iraq.* ** *Koya University-College of Science-Department of Mathematics, Erbil, Iraq.*
7:00PM-9:00PM	Dinner

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Monday, November 16, 2009

Afternoon Sessions

Session B for Papers

Place: Seminar Hall/Biology department
Location: College of Science.

Chairs	Hussein A. Al-Jaboury, *Al-Mustansiriya University-Iraq.* Faraidun K. Hama-Saleh, *University of Sulaimani, Iraq.*
2:30PM-2:50PM	The Newton's method on quartic polynomials **Hussein J. Abdul Hussein** *Dep. of Math. and Computer Applications-College of Science-Al-Muthana University, Iraq.*
2:55PM-3:15PM	Numerical solution of system of linear fredholm integral equations using the open Newton-Cotes formulas **Luma N. Tawfiq and Ghada H. Ibrahim** *Department of Math.-Ibn-Al-Haitham College of Education -University of Baghdad, Iraq.*
3:20PM-3:40PM	The observability of infinite dimensional nonlinear control system using banach fixed point theorem **Radhi A. Zboon and Manaf A. Salah** *Dep. of Math. and Computer Applications -College of Science, Al-Nahrain University-Iraq.*
3:45PM-4:05PM	Third-order iterative methods for finding multiple roots of nonlinear equations **Rostam K. Saeed and Shno O. Ahmed** *Department of Mathematics-College of Science -Salahaddin University, Iraq.*
Chairs	**Najmadden A. Sulaiman**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.* **Nouraddin M. Mohammed**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
4:10PM-4:30PM	(0, 3, 5) lacunary interpolation by spline function **Faraidun K. Hama-Salh** *Dept. of Mathematics-College of Scientific Education -University of Sulaimani, Iraq.*
4:35PM-4:55PM	Lacunary interpolation by quartic splines with application to quadratures ***Abbas Y. Al Bayati; **Rostam K. Saeed and ***Faraidun K. Hama-Salh** **Professor of Numerical Optimization, University of Mosul, Iraq.* ***Assistant Professor of Numerical Analysis, Salahaddin University/Erbil, Iraq.* *** Lecturer of Numerical Analysis, University of Sulaimani, Iraq.*
5:00PM-5:20PM	Construction of some third and fourth-order methods to solve nonlinear equations by using interpolation polynomials **Kawa M. Aziz and Rostam K. Saeed** *Dep. of Mathematics -College of Science – Salahaddin University/Erbil, Iraq*
5:25PM-5:45PM	Stabilized 4th order Runge-Kutta subdomain method for Volterra integral equation of the second kind **Hussain A. Al-Jaboury and Ahmed S. Al-Asady** *Dep. of Mathematics-College of Science- Al-Mustansiriyah University, Iraq.*
7:00PM-9:00PM	Dinner

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Monday, November 16, 2009

Afternoon Sessions

Session C for Papers

Place: Seminar Hall/Physics department
Location: College of Science.

Chairs	**Parwen A. Hamadi**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.* **Haider J. Ali**, *Al-Mustansiriya University-Iraq.*
2:30PM-2:50PM	On the structure of jordan *-derivation pairs **Ali A. Altay and Abdulrahman H. Majeed** *Department of mathematics-College of science- University of Baghdad, Iraq.*
2:55PM-3:15PM	Fully pseudo stable modules **Mehdi S. Abbas** *Department of Mathematics-College of Science-Mustansiriya University, Baghdad, Iraq.*
3:20PM-3:40PM	S-compactly packed and cosemi-primely packed modules ***Ali S. Mijbass and **Firas A. fawzi** **University of Tikrit - College of Computers Sciences and Mathematics - Department of Mathematics, Iraq.* ***University of Tikrit- Education College-Dep. of Mathematics, Tikrit, Iraq.*
3:45PM-4:05PM	On semiprime *- rings with involution **Mehsin J. Atteya and Dalal I. Ressan** *Dep. of Mathematics-College of Education-Al-Mustansiriyah University, Iraq.*
Chairs	**Khidr R. Sharaf**, *University of Dohuk, Kurdistan Region , Iraq.* **Hersh O. Abdulla**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
4:10PM-4:30PM	Derivations of semiprime rings with left cancellation property **Mehsin J. Atteya** *Dep. of Mathematics-College of Education -Al –Mustansiriyah University, Iraq.*
4:35PM-4:55PM	The escape time dimension of fractals constructed by iterated function system **Adil M. Ahmed AdulSamee A. Al_janabi and Arkan J. Mohammed** *Department of Mathematics -College of Science-Al-Mustansiriah University, Iraq.*
5:00PM-5:20PM	P-small submodules and p-hollow modules ***Inam M. Hadi and **Tamadher A. Ibrahiem** **Dep. of Mathematics -College of Ibn-Alhaitham -University of Baghdad, Iraq.* ***Department of Mathematics -College of Science for women -University of Baghdad, Iraq.*
5:25PM-5:45PM	Some results on (σ,τ)-left jordan ideals in prime rings **Kassim A. Jassim** *Department of Mathematics -College Of Science -University of Baghdad, Iraq.*
7:00PM-9:00PM	Dinner

Monday, November 16, 2009

Afternoon Sessions

Session D for Papers

Place: Seminar Hall/Geology department
Location: College of Science.

Chairs	**Tariq S. Abdul-Razaq**, *Al-Mustansiriya University-Iraq.* **Najwa R. Mustafa**, *University of Baghdad, Iraq.*
2:30PM-2:50PM	On a Newtonian fluid flow problem in two dimension solving by mac algorithm **Mohammed S. Hussein and Ahmed M. Abdul Hadi** *Department of Mathematics-College of Science-University of Baghdad, Iraq.*
2:55PM-3:15PM	About fractional operators: behavior and extension **Alauldin N. Ahmed and Ahmed A. Yousif** *Dep. of Math.& Computer-Science College–Applications/Al-Nahrain University.*
3:20PM-3:40PM	Fractional order variational problems **Alauldin N. Ahmed** *Dep. of Math.& Computer-Science College - Applications -Al-Nahrain University.*
3:45PM-4:05PM	Separable solution for einstein's field equation **Inaam A. Malloki; Mahmood K. Jasim and Farah Y. Al-Sharwany** *Dep. of Mathematics -College of Science -University of Mustansiriyah, Iraq.*
Chairs	**Abbas Y. Al-Bayati**, *University of Mosul, Iraq* **Ivan S. Latif**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
4:10PM-4:30PM	Strategic sensors and regional exponential observation in Neumann boundary conditions **Raheam A. Al-Saphory and AL-Jobouri Mohammed** *Department of Mathematics-College of Education -Tikrit University, Tikrit, Iraq.*
4:35PM-4:55PM	The collocation method for solving nonhomogeneous fuzzy boundary value problems **Osama H. Mohammed and Fadhel S. Fadhel** *Department of Mathematics and Computer Applications-College of Science-Al-Nahrain University-Baghdad - Iraq.*
5:00PM-5:20PM	Calculation lyapunov exponents for types of local bifurcation ***Iftichar M. Talb and **Hassan K. Jassim** **Babylon University, **Thi-Kar University*
5:25PM-5:45PM	Single machine scheduling to minimize a function of square completion time and maximum earliness simultaneously ***Tariq S. Abdul-Razaq and **Haidar Y. kawi** **University of Al-Mustansiriya- College of Science-Dep. of Mathematics, Iraq.* *** University of Al-Qadisiya- College of Computer Science and Mathematics - Department of Mathematics, Iraq.*
7:00PM-9:00PM	Dinner

Tuesday, November 17, 2009

Morning Session

Session A for Papers

Place: Seminar Hall/Chemistry department

Location: College of Science.

Chairs	Nadir G. Mansour, *Al-Mustansiriya University-Iraq.* Ibrahim O. Hamad, *Salahaddin University/Erbil, Kurdistan Region, Iraq*
9:00AM-9:20AM	Hyperbola revisited **Arsalan Chademan** *Dep. of Math.-Faculty of Science-University of Kurdistan. P.O. Box 416, Sanandaj, Iran*
9:25AM-9:45AM	On a class of analysis functions associated with ruscheweyh derivative *Abdul Rahman S. Juma; *Saleh M. Husin and **Hasan H. Ibrahim **Alanbar University, **Tiktit University*
9:50AM-10:10AM	Range equality of two operators on Hilbert space ***Sadiq N. Nassir and **Mohammed S. Balasim** **Department of Mathematics-Collage of science-University of Bagdad, Iraq.* ***Department of Mathematics-Collage of science-AL-Mustansiryah University, Iraq.*
10:15AM-10:35AM	Some applications of generalized Ruscheweyh derivatives for a class of analytic functions with negative coefficients ***Waggas G. Atshan and **S. R. Kulkarni** ** Dep. of Math.-College of Computer Science and Mathematics-University of Al-Qadisiya,, Diwaniya – Iraq.* *** Department of Mathematics-Fergusson College, Pune – 411004, India.*
10:35AM-11:00AM	Coffee Break
Chairs	Taha H. Jasem, *Tikrit university-Iraq.* Arkan J. Mohammed, *Al-Mustansiriya University-Iraq.*
11:00AM-11:20AM	Iterative algorithms systems of equilibrium problems fixed points and variational inequality **Shahram Saeidi** *Dep. of Mathematics, University of Kurdistan, Sanandaj 416, Kurdistan, Iran.*
11:25AM-11:45AM	Interpolating operators for multi approximation **Eman S. Bhaya** *Mathematics Dep.-College of Education-Babylon University-Babylon-Hilla, Iraq.*
11:50AM-12:10PM	Approximations of unbounded functions **Saheb K. Al-Saidy** *Dep. of Mathematics-Science College -Al-Mustansiriya University, Iraq.*
12:15PM-12:35PM	Hypersolvable Complex Reflection Arrangements **Michel Jambu, Abid A. Al-Taai, Rabeaa G. AL-Aleyawee** *Laboratoire de Mathematiques, UMR 6629 CNRS,Universite de Nantes 2, rue de ia Houssiniere, BP 92208, 44322 Nantes cedex 3, France;Minstary of Higher Education And scientific Research;AL-Mustansiriyah University Collage of science Math. Dep.*
12:35PM-2:00PM	Lunch at College of Science, Salahaddin University/Erbil

Afternoon Session (Closing Session of the Conference)

Chairs	Michel Waldschmidt Sami D. Gabbara Najmadden A. Sulaiman Rostam K. Saeed Herish O. Abdullah
2:30PM-5:00PM	General Discussion and Recommendations
7:00PM-9:00PM	Dinner

Tuesday, November 17, 2009
Morning Session

Session B for Papers

Place: Seminar Hall/Biology department
Location: College of Science.

Chairs	**Sabah Jassim,** *England* **Rostam K. Saeed**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
9:00AM-9:20AM	Power series method for solving systems of nonlinear volterra integral equations of the second kind ***Ahlam J. Khaleel** and ****Hanan M. Hasoon** **Department of Mathematics and Computer Applications- Al-Nahrain University, Baghdad, Iraq.* *** Department of Mathematics-College of Education- Ibn Al-Haithm, Iraq*
9:25AM-9:45AM	Construction of new triangle to find the coefficients of the polynomials represent the term $\Pi(x+j)$ **Faez H. Ali Al_Azawi** *Dep. of Mathematics-College of Science- Al_Mustansiriyah University, Iraq.*
9:50AM-10:10AM	An approximate solution of some continuous time linear-quadratic optimal control problem via generalized Laguerre polynomia **Suha N. Al-Rawiand** **Hala R. Al-Rubaie** *University of Technology- Al-Mustansriyah University, Iraq.*
10:15AM-10:35AM	Approximate method to solve cauchy-type singular integral equations **Jabar S. Hassan** *Salahaddin University/Erbil-College of Science-Dep. of Mathematics, Iraq.*
10:35AM-11:00AM	Coffee Break
Chairs	**Ahlam J. Khaleel**, *Al-Nahrain University, Iraq.* **Azher A. Mohammed**, *Tikrit university-Iraq.*
11:00AM-11:20AM	Modification of successive approximation method to solve a system of Leif of the 2nd kind ***Nejmaddin.A.Sulaiman** and ****Shilan.O.Hussin** ** Salahaddin University/Erbil-College of Educational Science-Dep. of Mathematics, Iraq.* ***University of Sulaimani-College of Science-Dep. 0f Mathematics, Iraq.*
11:25AM-11:45AM	Intuitionistic fuzzy sets clustering (IFSC) and its application: quality gaps services in servqual model **Adel Fatemi, Hersh Soltanpanah**
11:50AM-12:10PM	Stability of Cauchy autoregressive model **Azhar A. Mohammad** and **Ahmed K. Ghannam** *College of Education for Women-Tikrit University.*
12:35PM-2:00PM	Lunch at College of Science, Salahaddin University/Erbil

Afternoon Session (Closing Session of the Conference)

Chairs	**Michel Waldschmidt** **Sami D. Gabbara** **Najmadden A. Sulaiman** **Rostam K. Saeed** **Herish O. Abdullah**
2:30PM-5:00PM	General Discussion and Recommendations
7:00PM-9:00PM	Dinner

Tuesday, November 17, 2009
Morning Session
Session C for Papers
    Place: Seminar Hall/Physics department
    Location: College of Science.

Chairs	**Kamaran Divaani-Aazar**, *Al-Zahra University-Iran.* **Abdulrahman Majeed,** *Baghdad University, Iraq.*
9:00AM-9:20AM	The group action of the class WG_{ds} ***Sami D. Gabbara** and ****Sarteep A. Jabbar** **Dep. of Mathematics- College of Science- Sallahaddin University/Erbil, Iraq.* ***Computer Unit-College of Science Sallahaddin University/Erbil, Iraq.*
9:25AM-9:45AM	New generators $E_{i,j}^n$ and $T_{i,j}^n$ for the class G_{ds} ***Sami D. Gabbara** and ****Sarteep A. Jabbar** **Dep. of Mathematics- College of Science- Sallahaddin University/Erbil, Iraq.* ***Computer Unit-College of Science Sallahaddin University/Erbil, Iraq.*
9:50AM-10:10AM	Gorenstein injective, derived category and local cohomology **REZA SAZEEDEH** *Department of Mathematics, Urmia University, P.O.Box: 165, Urmia, Iran-And, School of Mathematics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran.*
10:15AM-10:35AM	Linear quotients and shellability **Ali S. Jahan** *Dep. of Mathematics, University of Kurdistan, P.O.BOX 416, Sanandaj, Iran.*
10:35AM-11:00AM	Coffee Break
Chairs	**Mehdi S. Abbas**, , *Al-Mustansiriya University-Iraq.* **Abdulla M. Abduljabar** *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
11:00AM-11:20AM	Some results of sequentially Cohen-Macaulay modules ***Hero Saremi** and ****Amir Mafi** **Islamic Azad University Sanandaj Branch, Pasdaran St., P.O. Box 618, Sanandaj, Iran.* ***University of Kurdistan Pasdaran ST., P.O. Box: 416, Sanandaj, Iran*
11:25AM-11:45AM	Generalizations and bounds for the degree of singularity of a graph **Khidir R. Sharaf** *Dept. of Mathematics-College of Education-University of Dohuk, Iraq.*
11:50AM-12:10PM	Characterization the deletable set of vertices in the $(p-3)$−regular graphs **Akram B. Attar** *Dep. of Mathematics-University of Thi-Qar-Collage of Education- Iraq.*
12:35PM-2:00PM	Lunch at College of Science, Salahaddin University/Erbil

Afternoon Session (Closing Session of the Conference)

Chairs	**Michel Waldschmidt** **Sami D. Gabbara** **Najmadden A. Sulaiman** **Rostam K. Saeed** **Herish O. Abdullah**
2:30PM-5:00PM	General Discussion and Recommendations
7:00PM-9:00PM	Dinner

Tuesday, November 17, 2009
Morning Session
Session D for Papers
Place: Seminar Hall/Geology department
Location: College of Science

Chairs	**Saheb K. Al-Saidy**, *Al-Mustansiriya University-Iraq.* **Izad Ibrahim**, *Salahaddin University/Erbil, Kurdistan Region, Iraq.*
9:00AM-9:20AM	Exact and local search methods for single machine with multiple criteria ***Hanan A. Chachan; *Tariq S.Abdul-Razaq and **Sattar B.Sadkhan** **University of Mustansiryah- College of Science- Mathematical Department* ***University of Babil- College of Science- Mathematical Department*
9:25AM-9:45AM	A single machine with release date to minimize the maximum completion time and sum of completion time ***Tariq S. Abdul-Razaq and **Iraq T. Abbas** **Dep. of Mathematics -College of Science- Al-Mustansiriyah University, Iraq.* ***Department of Mathematics- College of Science- University of Baghdad, Iraq.*
9:50AM-10:10AM	Dominance rules for single machine problem to minimize the total penalized earliness, tardiness, completion time and number of late jobs ***Tariq S. Abdul-Razaq and **Najwa R. Mustafa** ** Dep. of Mathematics-College of Science- Al-Mustansiriyah University, Iraq.* ***Dep. of Mathematics-College of Science for Women, Baghdad University, Iraq.*
10:15AM-10:35AM	Kuhn-Tucker type necessary optimality criteria and duality in nonlinear programming involving b-locally connected function **Muhenned. A. Abdul-Sahib** *College of Computer Science and Mathematics-hi-Qar University , Iraq.*
11:00AM-11:20AM	Coffee Break

Chairs	**Inaam M. Ali**, *University of Baghdad, Iraq.* **Radhi A. Zaboon**, , *Al-Nahrain University, Iraq.*
10:35AM-11:00AM	Minimizing multiple objective function on machine scheduling problem **Muhammed k. Al Zuwaini; **Tariq S. Abdul Razaq and**Saheb K. Al Saidy** **Thi-qar University- Collage of Mathematics and Computer science, Iraq.* ***University of Al Mustansiriyah- College of Science, Iraq.*
11:25AM-11:45AM	38-theorem to solvable special cases for n-job, (m-machine and 3-machine) flow shop problem involving transportation time **Niran A. Ali** *Dep. of Mathematics-College of Science-Al-Mustansiriyah University, Iraq.*
11:50AM-12:10PM	Learning the neural network using new evolving method to solve prediction problems **Saher A. Mohammed Al-Bassam** *Dep. of Mathematics-College of Science- Al Mustansiriyah University, Iraq.*
12:15PM-12:35PM	Comparison between LBFGS algorithm and free self-scaling VM algorithms for unconstrained optimization **Omar B.Mohammed** *Dept. of Mathematics, College of Science, Koya University.*
12:35PM-2:00PM	Lunch at College of Science, Salahaddin University/Erbil

Afternoon Session (Closing Session of the Conference)

Chairs	**Michel Waldschmidt Sami D. Gabbara** **Najmadden A. Sulaiman Rostam K. Saeed Herish O. Abdullah**
2:30PM-5:00PM	General Discussion and Recommendations
7:00PM-9:00PM	Dinner

TITLES AND ABSTRACTS OF LECTURES

ON PARAMETERIZED CG WITH FOUR AND FIVE PARAMTERS

Abbas Yunis Al-Bayatti

Abstract

In this paper, we have proposed a new family of four and five- parameters conjugate gradient methods for solving nonlinear unconstrained optimization problems. They are depend on at most five parameters and include the already-existing ten practical nonlinear conjugate gradient methods. They are subsumes some other families of nonlinear conjugate gradient methods as its subfamilies, with Powell's restart criterion. The new proposed family with strong Wolfe-Powell line searches are ensure the descent property for each search direction. Some general convergence results are established for the proposed family. Our numerical results are very promising in general by using several nonlinear test functions.

AN INTRODUCTION TO PERIODIC HOMOGENIZATION: THE UNFOLDING APPROACH

Alain Damlamian

Abstract

The basic question of periodic homogenization will be presented in the case of linear elliptic boundary value problem: What can be said of the sequence of solutions $u_\in$ of the problem

$$-div(A^\in(x)\nabla u_\in) = f \text{ in } \Omega$$
$$u_\in = 0 \text{ on } \partial\Omega,$$

where Ω is a bounded in dimension N, f is an element of $H^{-1}(\Omega)$, and when the matrix field $A^\in(x)$ is $\in$-periodic, for example $A^\in(x) = A(\frac{x}{\in})$ for a fixed and Y-periodic matrix field $A(y)$. The most elementary method in this situation, the Periodic Unfolding Method, will be presented. We will show that how it gives the well-known results of homogenization, and then some more.

WIENER INDICES AND HOSOYA POLYNOMIALS OF GRAPHS

Ali Aziz Ali

Abstract

The abstract: Distance in graphs , generalized distance , Steiner distance , and width distance will be explained . Wiener indices and Hosoya polynomials with respect to such distance will be discussed for some classes of graphs . Some chemical graphs will be considered.

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Survey of Parallel Block Methods for Initial Value Problems
Bashir Khalaf

Abstract

Parallel block methods provide interesting schemes. These schemes contain many tasks which can be computed in parallel and the performance of the particular parallel block scheme depends on the number of these independent tasks. We conclude that the algorithms developed are suitable for executing in fully parallel systems , i.e. MIMD computers. Moreover the solutions of stiff ODEs using parallel computers offer a promising field for future research.

ON THE NON-RANDOMNESS OF MODULAR ARITHMETIC PROGRESSIONS: A SOLUTION TO A PROBLEM BY V. I. ARNOLD
Brigitte Vallée

Abstract

There is a Russian tradition of formulating promising open problems during semi-nars with a view to promote research. One of the most famous Moscow seminar is led since the 1950's by Vladimir Igorevich Arnold. His complete collection of prob- lems, known as "Zadachi Arnolda", has been recently translated and published in English [1]. One of the most recent problems is concerned with the understanding of [1] what Arnold calls the randomness of arithmetic progressions. After making precise how Arnold proposes to measure the randomness of a modular sequence, we show that this measure of randomness takes a simplified form in the case of arithmetic progressions. This simplified expression is then estimated using the methodology of dynamical analysis, which operates with tools coming from dynamical systems theory. We deal with various tools: Dirichlet series, Perron's formula, transfer operators, bounds `a la Dolgopyat.

In conclusion, this study shows that modular arithmetic progressions are far from behaving like purely random sequences, according to Arnold's definition. This is by no mean a surprise since it is difficult to imagine a sequence which would be more predictable than an arithmetic progression: nobody would have ever thought to use it as a device to produce random numbers! However, our result provides a precise estimate for quantifying this non-randomness, which would have been difficult to obtain with elementary means. Our result can also be viewed as a metric version of the classical two distance theorem.

MEASURES OF PSEUDORANDOMNESS FOR FINITE BINARY SEQUENCES
Christian Mauduit

Abstract

A survey on recent results concerning pseudorandomness of finite binary sequences. In a series of papers, A. Sarkozy and myself introduced new measures of pseudorandomness connected to the regularity of the distribution relative to arithmetic progressions and the correlations. We analysed and compared several constructions and we gave a method to construct large families of pseudo-random binary sequences based on the Legendre symbol. We also studied the expectation and the minima of these measures and the connection between correlations of different order.

NON-LINEAR EIGENVALUE PROBLEMS
Fatima Mohamad ABOUD

Abstract

In this work we study the polynomial family of operators L(z) = H0 + zH1 + z², where the coefficients H0,H1 are operators defined on the Hilbert space H and z is a complex parameter. We are interested to study the spectrum of the family L(z). The problem L(z)u(x)=0, is called a non-linear eigenvalue problem for m greater or equal to 2 (The complex number z0 is called an eigenvalue of L(z), if there exists u0 in H, u0 different from 0 such that L(z0)u0=0). We consider here a quadratic family (m=2) and in particular we are interested in the case $L(z)=- \Delta_x+(P(x)-z)^2$, which is defined on the Hilbert space $L^2(R^n)$, where P is an elliptic positive polynomial of degree M greater or equal to 2. For this example results for existence of eigenvalues are known for n=1 and n is even.
The main goal of our work is to check the following conjecture, stated by Helffer-Robert-Wang : For every dimension n, for every M greater or equal to 2, thespectrum of L is non empty.
We prouve this conjecture for the following cases :
1) n=1,3, for every polynomial P of degree M greater or equal to 2.
2) n=5, for every convex polynomial P satisfying some technical conditions.
3) n=7, for every convex polynomial P.
 This result extends to the case of quasi-homogeneous polynomial and
quasi-elliptic, for example $P(x,y)=x^2+y^4$, x in R^{n1}, y in R^{n2}, n1+n2=n, and n is even. We prove this results by computing the coefficients of a semi-classical trace formula and by using the theorem of Lidskii.

THE HUMAN COST OF TYRANNY IN IRAQI KURDISTAN: A BAYESIAN DYNAMIC ESTIMATION
Jamal Rasul M. Ameen

Abstract

Over the past thirty years or so, Iraq was ruled through harsh dictatorship and its citizens especially those of ethnic Kurds were subjected to various inhuman acts of genocide, mass graves, relocation, Anfal and migration all at massive scales. The huge national wealth was used to curb progress.

This paper attempts to formulate a dynamic Bayesian model based on a combination of models developed the author and the classically constructed Leslie Matrix approach from which various scenarios are generated for the progression of the population of Iraq and Kurdistan Region starting from the census results of 1947 and 1957. Latter census figures are used to estimate fertility rates and survival probabilities for different age groups for Kurdistan Region for their reliability.

Initial estimates indicate that Kurdistan Region has lost around 1,911,479 people between casualties and immigrants of which 1,043,549 male and 867,930 female over of different age groups during the past decades.

DISCRETE CURVATURES AND GEOMETRIC MODELING
Jean-Louis Maltret

Abstract

Discrete curvatures, which are in discrete cases similar to continuous curvatures well-known since Gauss, have many applications in geometric modelling. We present historical considerations and recent results which are relevant for Computer Aided Design and medical imagery.
(joint work with Alaa Mustafa, PhD at University of Mediterranee, Marseilles).

HYPERPLANE ARRANGEMENTS, LOWER CENTRAL SERIES AND CHEN LIE ALGEBRAS

Michel Jambu

Abstract

A classical construction of *W*. Magnus associates to a group *G* a graded Lie algebra over $\mathbb{Z}$,

$$gr(G) = \bigoplus_{k \geq 1} \Gamma_k G / \Gamma_{k+1} G$$

Where $\{\Gamma_k G_k\}_{k \geq 1}$ is the lower central series of the group, defined inductively by $\Gamma_1 G = G$ and $\Gamma_{k+1} G = [\Gamma_k G, G]$, and the Lie bracket $[x,y]$ is induced from the group commutator $(x,y) = xyx^{-1}y^{-1}$. Many properties of a group are reflected in properties of its associated graded Lie algebra. For instance, if G is finitely generated, then the abelian groups $gr_k(G)$ are also infinitely generated; their ranks, $\phi_k(G)$, are important numerical invariants of G. In general, the computation of the LCS ranks $\phi_k(G)$ can be exceedingly difficult. On the other hand, K. T. Chen introduced a more manageable approximation to the LCS ranks. The Chen groups are the graded pieces of the associated graded Lie algebra $gr(G/G'')$. Assume G is infinitely generated, and let $\theta_k(G) = \text{rank}(gr_k(G/G''))$ be the rank of k-th Chen group. Then $\theta_k(G) = \phi_k(G)$ for $k \leq 3$, and $\theta_k(G) \leq \phi_k(G)$ for $k \geq 3$. These θ-invariants provide stronger information than LCS ranks, distinguishing, in some cases, groups of fiber-type arrangements from the corresponding direct products of groups.

In this talk, we will consider the fundamental group of the complement of hyperplane arrangements and we will give several examples altogether with some conjectures expressing these numerical invariants of an arrangement group in terms of the dimensions of the components of the resonance variety.

TORUS-BASED CRYPTOGRAPHY

Mohammad Eftekhari

Abstract

In a classical diffie-Helman exchange key, two parties A and B, exchange an element of the cyclic groupe of a large finite field, from which each party derive a common key. The question of reducing the size of the data to be exchanged and keeping the same degree of security is very important. Using the Weil descent theory (Weil restriction), torus-based cryptography answers this question.

ZERO DIVISOR GRAPHS OVER COMMUTATIVE RINGS

Nazar Shuker

Abstract

Let R be a commutative ring with identity, and let Z(R) denote its set of zero divisors. We associate a simple graph G(R) to R with vertices x and y are adjacent if x.y=0 . We shall examine the zero divisor graphs of (The ring of integers modulo n) and other rings.

COMBINATORICS OF POLYHEDRAL
Pierre Cartier

Abstract
Different ways of representing the composition of functions, trees, dissection of polygons, polytopes in several dimensions.

HIGHER ORDER ITERATIVE METHODS FOR SOLVING NONLINEAR EQUATIONS F(X)=0
Rostam K. Saeed

Abstract
One of the classical problems in numerical analysis is to find the solutions of the nonlinear equation $f(x)=0$ because the solutions of nonlinear equations are necessary due to their wide range of appearances in a number of fields, for example, boundary value problems, dynamic systems are mathematically modeled by difference or differential equations, chemical engineering, operation research and many others which involve solving nonlinear equations either individually or collectively. Iterative methods are used to solve these nonlinear equations. Recently, due to the development of various computer software and hardware many iterative methods have been developed to approximate a solution to nonlinear equations $f(x)=0$. In this lecture, we try to present some new modifications in the last ten years of Newton-Raphson method, and also we derive some new methods with higher order convergence for solving nonlinear equations $f(x)=0$.

MATHEMATICALLY BASED COMPUTATIONAL TECHNIQUES AND TOOLS FOR FACE RECOGNITION
Sabah jassim

Abstract
This presentation aims to describe the various challenges associated with automatic person recognition using multi-modal biometrics system, and to identify the various mathematical models of these challenges. This talk will be an attempt to highlight the various branches of mathematics that provide possible and feasible solutions. I would start with the **curse of dimension problem** as one of the most serious obstacles to face recognition, and highlight the mathematics that underpin dimension reduction techniques. I would also discuss the problem of protecting biometric templates against theft and replay attacks, and demonstrate how know mathematical techniques could contribute to solving this problem.

PARTICIPANTS WITH PAPERS

(TITLE & ABSTRACT)

THE NEWTON'S METHOD ON QUARTIC POLYNOMIALS

Hussein J. Abdul Hussein
Department of Mathematics and Computer Applications-College of Science-Al-Muthana
University, Iraq.
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Abstract

The Newton's method is one of the numerical method for finding the roots of polynomials. In this work ,we used this method on quartic polynomials and we prove any quartic polynomial conjugate to polynomial of the form $z^4 + t$, for some non zero t ,and the Newton's function of quartic polynomial conjugate to Newton's function of $z^4 + t$, for some non zero . Finally we use Matlab program for compares of graph of conjugate polynomials.

ON THE STRUCTURE OF JORDAN *-DERIVATION PAIRS

Ali A. Altay   and   AbdulRahman H. Majeed
Department of mathematics-College of science- University of Baghdad, IRAQ.
Mail: ahmajeed6@yahoo.com   Mail:ali_abd335@yahoo.com

Abstract

In this paper we prove the following results the first, Let R be a 6-torsion free *-ring with an identity element and let (d,g) be a Jordan *-derivation pair then (d,g) be a *-derivation pair, and the second, Let R be a 6- torsion free non-commutative prime *-ring with Z(R)≠0, then R is normal if and only if there exists a non-zero commuting *-derivation pair.

ON A CLASS OF ANALYSIS FUNCTIONS ASSOCIATED WITH RUSCHEWEYH DERIVATIVE

*Abdul Rahman S. Juma;   *Saleh M. Husin   and   **Hasan H. Ibrahim
*Alanbar University
**Tiktit University
E-mail: dr_juma@hotmail.com

Abstract

Using the Ruscheweyh derivative , we have introduced and investigated a class of analytic functions with negative coefficients in the unit disc. Necessary and Sufficient coefficient condition for this class are provided .The various properties are also determined .

ON A NEWTONIAN FLUID FLOW PROBLEM IN TWO DIMENSION SOLVING BY MAC ALGORITHM

Mohammed S. Hussein   and   Ahmed M. Abdul Hadi
Department of Mathematics-College of Science-University of Baghdad, Iraq.

Abstract

In this study consideration is given to viscose, incompressible, and Newtonian fluid flowing in a pipe with square cross-section under the action of pressure gradient. In particular consideration is given to first order fluid flow which can be represented by the equation of state of the form: $T_{ij} = 2\eta\ e_{ij}$ i,j= 1,2 Where η is constant of fluid, T_{ij} and e_{ij} are the stress and rate of strain respectively. Cartesian coordinate has been used to describe the fluid motion and it found that motion equations are controlled by Reynolds number. The motion equations are solved by an explicit algorithm namely MAC. The MATLAB package is used to draw the figures of the velocity components in the plane. Our study is ended with studying the effect of time and Reynolds number on the secondary flow.

NUMERICAL SOLUTION OF SYSTEM OF LINEAR FREDHOLM INTEGRAL EQUATIONS USING THE OPEN NEWTON-COTES FORMULAS

Luma N. Tawfiq and   Ghada H. Ibrahim
Department of Mathematics-Ibn-Al-Haitham College of Education -University of Baghdad, Iraq.
E-mail: ghadamath@yahoo.com

Abstract

In this paper, the linear system of Fredholm integral equations is solving by using Open Newton-Cotes formula, which we use five different types of Open Newton-Cotes formula to solve this system.

Also, we compare the results suggested method in this paper with the results of another method (closed Newton-Cotes formula) Finally, at the end of each method, algorithms and programs developed and written in MATLAB (version 7.0) and some numerical examples.

STABILITY OF CAUCHY AUTOREGRESSIVE MODEL

Azhar A. Mohammad   and   Ahmed K. Ghannam
College of Education for Women-Tikrit University P.O BOX
E mail: Ahmedgannam@yahoo.com; E-mail: drazh64@yahoo.com

Abstract

In this paper we propose a Cauchy Autoregressive model which is one of a non linear time series model and we find stability conditions of this model by using a dynamical approach based on a local linearization technique in the neighborhood of a non-zero singular point of the model or in a neighborhood of each of a limit cycle when the model posses a limit cycle. Finally we apply the stability condition that we are found to a Cauchy Autoregressive models with different orders, these models represent a monthly time series of number of births in Tikrit city in IRAQ for the years (1990-2000) .A.C.

ABOUT FRACTIONAL OPERATORS: BEHAVIOR AND EXTENSION

Alauldin N. Ahmed   and   Ahmed A. Yousif
Dep. of Math. and Comp.-Science College–Applications/Al-Nahrain University, Iraq.
Email: ahmedayy79@yahoo.com

Abstract

In this paper, we are study some behavior fractional operators solutions, such as existence, uniqueness and their stabilities and extended formulas for a dynamic multi-fractional order differential equations. Theorems are stated and proved, also a simple approach has been implemented to solve such system.

FRACTIONAL ORDER VARIATIONAL PROBLEMS

Alauldin N. Ahmed

Dep. of Mathematic & Computer-Science College - Applications -Al-Nahrain University , Iraq

Abstract

      In this paper, some properties and basic definitions of fractional derivatives of Riemann-Liouvill are presented. The optimality conditions for fractional order constrained and unconstrained variational problems are constructed for different types of fractional problems of calculus of variations having different multi fractional order derivatives (FOD) on several dependent variables w.r.t. one independent variable, on fixed and moving boundaries. Also, a direct method is presented, using the finite difference technique to obtain the optimality condition. Examples are presented to demonstrate the implementation of the optimality necessary conditions for each case.

SIMPLY IRRESOLUTENESS AND ALMOST SIMPLY CONTINUITY

Adea K. Hussin Al- Obiadi

Department Of Mathematics-College of Basic Education/Al-Mustansiriyah University,
Iraq. E-mail: aalobiadi@yahoo.com

Abstract

  The aim of this paper is to introduce the concepts of simply irresoluteness (briefly sm- irresoluteness**)** and almost simply continuity (briefly asm- continuity) as the functions that have the pre- images of simply open sets are simply open (resp. open) sets.
  We investigate the relations between these classes and several well known others of generalized continuous functions. Several characterizations and decompositions of certain form of continuities are provided. In particular, decompositions of semi-continuity, regularly-continuity, and continuity are provided.

SINGLE MACHINE SCHEDULING TO MINIMIZE A FUNCTION OF SQUARE COMPLETION TIME AND MAXIMUM EARLINESS SIMULTANEOUSLY

*Tariq S. Abdul-Razaq   and   **Haidar Y. Kawi

*University of Al-Mustansiriya- College of Science-Department of Mathematics, Iraq.
E-mail:imalloki@yahoo.com
** University of Al-Qadisiya- College of Computer Science and Math.- Dep. of Math., Iraq.
E-mail:hadirkawi@yahoo.com

Abstract

    In this study, to minimize a function of two cost criteria for scheduling n jobs on a single machine , the problem is discussed : " Minimizing a function of total square completion time and maximum Earliness simultaneously".
    For this problem we proposed some algorithms to find exact(optimal) solution for hierarchical case and efficient (pareto optimal) solutions for simultaneous case. Also we proposed branch and bound algorithm to find exact solution for sum of total square completion time and maximum Earliness ,and present algorithm D to find exact solution in a fast way with respect to (BAB) method. We present computational experience for the (BAB) method and algorithm(D) on a large set of test problems.

FULLY PSEUDO STABLE MODULES

Mehdi S. Abbas
Department of Mathematics-College of Science-Mustansiriya University, Baghdad, Iraq.
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Abstract

In this paper, we adopt the concept of fully pseudo stable modules which generalizes that of fully stable modules. We study their properties and charac- terizations. Conditions are investigate under which full pseudo stability versus full stability . We consider full pseudo stability of endomorphism ring and re- lated those modules with some generalization of injectivity. The behavior of fully pseudo stable modules is study under the operation of localization.

S-COMPACTLY PACKED AND COSEMI-PRIMELY PACKED MODULES

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Abstract

In this work, we generalize the concepts prime radical, radical submodule, compactly packed and coprimely packed from prime submodules to semi-prime submodules . We also generalize some results which are related to those concepts to semi-prime submodules.

ON THE SUBSPACE $X(\lambda)$ OF ENTIRE FUNCTIONS OF SEVERAL COMPLEX VARIABLES

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Abstract

Different subspaces of the spaces of entire functions was introduced by Nanda, were of much interest in recent times. The object of this paper is to study the FK-Space properties of the subspace $X(\lambda)$.

EXACT AND LOCAL SEARCH METHODS FOR SINGLE MACHINE WITH MULTIPLE CRITERIA

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Abstract

This paper considers a problem of scheduling 'n' jobs on single machine to minimize the sum of total weight completion time and total weighted number of late jobs. To solve this problem lower bounds and some dominance rules are derived and are incorporated in a branch and bound algorithm .We proposes heuristic methods to find near optimal solutions. We also report on computational experience with the branch and bound algorithm. Also we develop compare and test different local search methods (Descent, Simulation Annealing, Threshold Accepting, Genetic algorithm, and Ant colony algorithm) for the problem. Computational experience is found that these local search algorithms solve problem to '150 'jobs with reasonable time.

INTERPOLATING OPERATORS FOR MULTI APPROXIMATION

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Abstract

A major problem of the theory of approximation of functions is concerned with the connection between the structural properties of a function and its degree of approximation. The objective is to relate the smoothness of the function to the rate of decrease of the degree of approximation to zero. We are interested in our paper examining these questions for interpolating polynomial approximation. These are then the most classical settings where the results are the most penetrating and satisfying. A few good properties of approximation by interpolating polynomials have been proved for the spaces L_p with $0 < p < 1$. However . The L_p, $0 < p < 1$ are pathological in nature because there are no continuous linear functional in L_p except the zero functional, the inequality $\omega_k(f,\delta)_p \le c\delta\omega_{k-1}(f',\delta)_p$, was not satisfied. The estimate $E_n(f)_p \le cn^{-1}\ \omega_k(f,n^{-1})_p$, was not true in general for any $k \in N \bigcup \{0\}$, and there are several possible definitions of Sobolev space which are all equivalent if $1 \le p \le \infty$, and if $0 < p < 1$ the neednt be equivalent any more, and these are no good news. There is no simple definitions of operators for best multi approximation and best one sided multiapproximation which work for any measurable function in L_p for , $p > 0$. This was one of the reasons leading us to investigations of operators good for best multi approximation and best one sided multiapproximation. Unconstrained approximation. Best approximation, onesided approximation, best multi approximation, degree of approximation, L_p best approximation.

CHARACTERIZATION THE DELETABLE SET OF VERTICES IN THE (P − 3)−REGULAR GRAPHS

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Abstract

In this paper we characterized the (p−3)−regular graphs which have a 3−deletable and a 4−deletable set of vertices.

PRE-CONTRA-SEMI-CONTINUITY AND SEMI-CONTRA-PRE-CONTINUITY IN INTUITIONISTIC TOPOLOGICAL SPACES

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Abstract

In 2005 M.K.R.S. VEERA KUMAR [9] introduced and studied the contra-pre- semi-continuous function in general topology **.** In this paper we generalized this concept in intuitionistic topological spaces**.** We introduce and investigate new concepts of a contra-semi-continuous function, contra-pre-continuous function, contra-α-continuous function , contra-β-continuous function, pre-contra-semi-continuous function, semi-contra-pre-continuous function, pre-contra-pre-continuous function and semi-contra-semi-continuous function in intuitionistic topological spaces **.** We study all relations among of this new concepts also we study relations among those new concepts and an intuitionistic irresolute function , intuitionistic completely continuous and intuitionistic regular-contra in intuitionistic topological spaces**.** Finally we study and investigate the relations others among intuitionistic pre-semi-$T_{1/2}$ space, intuitionistic contra-β-continuous, intuitionistic semi-pre-$T_{1/2}$ space, intuitionistic contra-α-continuous , intuitionistic pre-semi-T_b space, intuitionistic contra-semi-continuous, intuitionistic semi-pre-T_b space, intuitionistic contra-pre-continuous , intuitionistic pre-semi-$T_{3/4}$ space, intuitionistic contra-pre-continuous , intuitionistic semi-pre-$T_{3/4}$ space and intuitionistic contra-semi-continuous **.**

THE OBSERVABILITY OF INFINITE DIMENSIONAL NONLINEAR CONTROL SYSTEM USING BANACH FIXED POINT THEOREM

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Abstract

In this paper, the observability of the mild solution to the following nonlinear dynamic control system have been discussed and proved:

$$s=twwwws=0w0wwdu(t)+Au(t)=f(t,u(t))+h(ts)g(s,u(s))ds+(Bw)(t),t>0dtu(0)=u,y=Cu-\int$$

The theoretical results have been obtained via Banach fixed point theorem and Semigroup theory.

A SINGLE MACHINE WITH RELEASE DATE TO MINIMIZE THE MAXIMUM COMPLETION TIME AND SUM OF COMPLETION TIME

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Abstract

In this paper many bicriteria scheduling problems of n jobs, on a single machine with release dates are considered. The cost f_i for each job i and the two criteria we want to minimize are f_{max} and $\sum f_i$. We present first the mathematical forms and algorithms for generating optimal solutions when one of the two criteria f_{max} and $\sum f_i$ is more important than the other. Also we stated and proved two propositions for finding optimal solutions for these hierarchical problems. We present also the mathematical form and branch and bound algorithm in order to find optimal solutions for the problem of minimizing a linear function of f_{max} and $\sum f_i$. We present computational experiments for the branch and bound method on a large set of test problems for the $1/r_i/\sum C_i+C_{max}$ problem.

RANGE EQUALITY OF TWO OPERATORS ON HILBERT SPACE

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Abstract

In this paper we introduce the class of range equality of two operators on Hilbert space, we study some basic properties of this class .Also we study the relationship between a special case of this class with the other kinds of classes of operators on Hilbert space.

THIRD-ORDER ITERATIVE METHODS FOR FINDING MULTIPLE ROOTS OF NONLINEAR EQUATIONS

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Abstract

In this paper, we suggest two new algorithms for finding multiple roots of nonlinear equations. We proved that the methods for multiple roots have third order convergence. Several numerical examples are given to illustrate the performance of the presented methods.

SOME APPLICATIONS OF GENERALIZED RUSCHEWEYH DERIVATIVES FOR A CLASS OF ANALYTIC FUNCTIONS WITH NEGATIVE COEFFICIENTS

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Abstract

For certain univalent function f, we study a class of functions f as defined by making use of the generalized Ruscheweyh derivatives involving a general fractional derivative operator, satisfying

$$Re\left\{ \frac{z(\Im_1^{\lambda,\mu} f(z))'}{(1-\gamma)\Im_1^{\lambda,\mu} f(z) + \gamma z^2 (\Im_1^{\lambda,\mu} f(z))''} \right\} > \beta \;.$$

A necessary and sufficient condition for a function to be in the class $A_\gamma^{\lambda,\mu,\nu}(n.\beta)$ is obtained. In addition, our paper includes distortion theorem, radii of starlikeness, convexity and close-to-convexity, extreme points. Also, we get some results in this paper.

ON SEMIPRIME *- RINGS WITH INVOLUTION

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Abstract

The purpose of this paper is to study and investigate some results concerning *-ring R such that G:R $\rightarrow$ R be an additive mappingsuch that G(xx*) = G(x)x*+xD(x*) is fulfilled for all x $\in$ R, for some derivation D of R. Where R is semiprime ,prime ,normal and semi-normal*-ring .We give some results about that.

DERIVATIONS OF SEMIPRIME RINGS WITH LEFT CANCELLATION PROPERTY

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Abstract

Let R be a semiprim ring with the left cancellation property ,U a nonzero ideal of R and d is a nonzero derivation on R.The purpose of this puper is to prove that if d satisfied some coditionsons,then R contains a nonzero centerl ideal.In particular when R is prime ring then R is commutative.

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(0, 3, 5) LACUNARY INTERPOLATION BY SPLINE FUNCTION

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Abstract

The object of this paper is to obtain the existence and uniqueness and error bounds for new type of lacunary interpolation by spline which is (0, 3, 5) case and application of it studied in the finial of paper by counting examples.

LACUNARY INTERPOLATION BY QUARTIC SPLINES WITH APPLICATION TO QUADRATURES

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Abstract

The aim of this work is to construct lacunary interpolation based on quartic C3-spline and to apply this spline function for finding approximate values of smooth function and its continuous derivatives. Upper bounds for errors and convergence analysis of the presented lacunary interpolation studied. Also, we have solved numerically two examples, to show the validity of the prescribed method by depending on the L∞-error estimation.

CONSTRUCTION OF SOME THIRD AND FOURTH-ORDER METHODS TO SOLVE NONLINEAR EQUATIONS BY USING INTERPOLATION POLYNOMIALS

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Abstract

In this paper, we construct third and fourth order methods for solving nonlinear equations by using the idea of interpolation. Several examples are given to illustrate the efficiency and performance of these new methods, also the new methods compared with some other methods.

THE ESCAPE TIME DIMENSION OF FRACTALS CONSTRUCTED BY ITERATED FUNCTION SYSTEM

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Abstract

In this paper, our objective is to invent a new method for counting the dimension of fractals constructed by the Escape Time Algorithm using the method of spreading the points inside the proposed window and we call this dimension the Escape Time dimension of the Escape Time fractals. We find the Escape Time dimension of some fractals constructed by Iterated function system (IFS) by finding the dynamical system related to the IFS and count this dimension. such as Cantor set, Sierprinski riangle and Manger Spong set.

ON S*-SEPARATION AXIOMS
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Abstract

S*-Separation axioms is the main aim in this paper. We get the following results: Every T_0, T_1, T_2, T_3 ,and T_4 space gives S*- T_0, S*- T_1 ,S*- T_2 ,S*- T_3 and S*- T_4 space respectively. Beside, we give examples to show that the converse may not be true in each case.

DOMINANCE RULES FOR SINGLE MACHINE PROBLEM TO MINIMIZE THE TOTAL PENALIZED EARLINESS, TARDINESS, COMPLETION TIME AND NUMBER OF LATE JOBS

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Abstract

The problem of scheduling Single Machine Problem to Minimize a Total penalty cost. In this environment, a set of n jobs which are available for processing at time zero has to be scheduled without preemptions on a single machine that can handle at most one job at a time. Many dominance rules are proved to improve heuristics used to solve the problem $1 / / \sum_{j=1}^{n} (\alpha_j E_j + \beta_j T_j + \theta_j C_j + \gamma_j U_j)$ .Also, a special case, i.e. $1 / / \sum_{j=1}^{n} (E_j + T_j + C_j + U_j)$ is studied.

Keywords: multiple objective scheduling, single machine

On fuzzy β -Separated

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Abstract

In this paper, fuzzy β -Separated, fuzzy weak β -Separated, are presented. Fuzzy β -Separated and fuzzy weak β -Separated , has its basis on the notation of fuzzy topological space which is given in definition (4.1).Also some of the basic properties and theorems related to fuzzy β -Separated and fuzzy weak β -Separated are presents. β -Separated

SEPARABLE SOLUTION FOR EINSTEIN'S FIELD EQUATION

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Abstract

Einstein's field equations for the case of class one, perfect fluid are rewritten as two partial differential equations, which are highly nonlinear. The purpose of this work is to investigate the solution space of both the models. Solving them, means finding new metrics, so many various types of separation forms have been stated and many formulas useful in simplifying the computation are used to derive separable solutions, we get some exact solutions by using the nonclassical separation methods

P-SMALL SUBMODULES AND P-HOLLOW MODULES

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Abstract

A proper submodule N of a module M is called small if N+W≠M for all proper submodule W of M .In this paper we introduce the notion of P-small submodule , where a paper submodule N of M is called P-small if N+P≠M   for any prime submodule P of M . We study these submodules , also we study modules with a.c.c (d.c.c) on P-small submodules. Beside these, we introduce the notion of P-hollow module , where an R-module M is called P-hollow if every proper submodule of M is P-small .We study this concept and give several properties related with it.

HYPERBOLA REVISITED

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Abstract

The traditional hyperbolas in the Euclidean plane satisfy remarkable properties characterized by area theorems and di®erential equations. This paper deals with these equivalent properties. It provides new information on a classical subject and naturally leads to generalized hyperbolas in the plane as well as in higher dimensional spaces.

A principal tool consists of quasi measure-preserving transformations, reducing the problem to an obvious standard case.

KUHN-TUCKER TYPE NECESSARY OPTIMALITY CRITERIA AND DUALITY IN NONLINEAR PROGRAMMING INVOLVING B-LOCALLY CONNECTED FUNCTION

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Abstract

B-locally connected function was defined by [1].A nonlinear programming problem involving this function was considered. Kuhn-Tucker type necessary optimally conditions is given under the hypotheses that the right differential with respect to an arc at an optimal point exists. Wolfe and Mond-Weir types duality results are formulated . The duality result are given using concept of B-locally connected function .

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STABILIZED 4TH ORDER RUNGE-KUTTA SUBDOMAIN METHOD FOR VOLTERRA INTEGRAL EQUATION OF THE SECOND KIND

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Abstract

In this paper we consider the step-by-step and local sub-domain methods. We prove that the localized 4th order Runge-Kutta's (RK_4) method is stable. This stability allows us to apply Runge-Kutta's method for step-by-step method in stead of many other methods such as quadratic splines. As it is known, the stability and convergence of the solution, in any domain, imply approximation to the exact solution for Volterra integral equation of the second kind (VIE2K). The numerical test that was given at the end of this paper supports the obtained theoretical results. In such test we use least square error. A comparison between the ordinary Runge-Kutta's method and our local and stable (RK_4) method shows a remarkable degree of minimization of the error. Matlab 6p5 presents an efficient tool to obtain the results efficiently, accurately and economically to interpret the goal behind this paper.

MINIMIZING MULTIPLE OBJECTIVE FUNCTION ON MACHINE SCHEDULING PROBLEM

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Abstract

In this paper we considered a single machine scheduling problems to minimize multiple Objective Function (MOF).The sum of earliness, tardiness and completion time penalties of the jobs and its special cases. As these problems are NP-hard, we proposed a branch and bound algorithms to obtain an optimal solution, we fined more than   lower bound. Some of special cases that give optimal solutions without branching were proved. The problem solved with up to 30 jobs.

SOME RESULTS ON (Σ,T)-LEFT JORDAN IDEALS IN PRIME RINGS

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Abstract

In this paper we have proved the following results. Let R be a prime ring,U be (σ,τ)-left Joradan ideal of R where σ,τ: $R \rightarrow R$ be two automorphisms of R and d be a nonzero derivation of R .   (1) If $(R,a)_{\sigma,\tau}$=0, then $a \in Z(R)$. (2) If $(R,U)_{\sigma,\tau}$=0, then $U \subset Z(R)$.(3) If aU=0(or Ua=0)   and $a \in R$, then a=0 or $U \subset Z(R)$.   (4) If $U \subset Z(R)$, then $\sigma(u)+\tau(u) \in Z(R)$ for all $u \in U$.(5) If characteristic of R not equal 2 and $U \subset C_{\sigma,\tau}$, then $\sigma(u)+\tau(u) \in Z(R)$ for all $u \in U$.(6) If $d(U)$=0, $d\tau$=τd and $d\sigma$=σd ,then $\sigma(u)+\tau(u) \in Z(R)$ for all $u \in U$.

POWER SERIES METHOD FOR SOLVING SYSTEMS OF NONLINEAR VOLTERRA INTEGRAL EQUATIONS OF THE SECOND KIND

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Abstract

In this work, we present the power series method for solving special types of systems of nonlinear Volterra integral equations of the second kind. To show the efficiency of this method, we solve some numerical examples.

STRATEGIC SENSORS AND REGIONAL EXPONENTIAL OBSERVATION IN NEUMANN BOUNDARY CONDITIONS

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Abstract

The aim of this paper is to introduce the concept of regional exponential observability in connection with the strategic sensors. Then we give characterization of such sensors in order that regional exponential observability can be achieved. The obtained results are applied to two-dimensional systems and various cases of sensors are considered. We also show that, there exists a dynamical system for diffusion system is not exponentially observable in the usual sense, but it may be regionally exponentially observable.

38-THEOREM TO SOLVABLE SPECIAL CASES FOR N-JOB, (M-MACHINE AND 3-MACHINE) FLOW SHOP PROBLEM INVOLVING TRANSPORTATION TIME

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Abstract

This study considers the problem of scheduling n-jobs on m-machines with transportation time between machines to minimize the maximum completion time makespan.

This problem, when there is no transportation time, is considered NP-hard and, it was discussed by Johnson, while the problem with transportation time is considered more difficult to solve and we are not aware of any research addressing this particular problem. Theoretically, we derive and prove 38 results concerning optimality of thirty eight special cases for the problem.

CONSTRUCTION OF NEW TRIANGLE TO FIND THE COEFFICIENTS OF THE POLYNOMIALS REPRESENT THE TERM Π(X+J)

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Abstract

In this paper a new triangle of the polynomials coefficients produced from the multiple of the term (x+j) will introduced. Depending on this triangle we will suggest a fast method to solve interpolation and numerical differentiation problems which are based on Newton-forward formula.

LEARNING THE NEURAL NETWORK USING NEW EVOLVING METHOD TO SOLVE PREDICTION PROBLEMS

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Abstract

The meaning of the Particle Swarm Optimization (PSO) refers to a relatively new family of algorithms that may be used to find optimal (or near optimal) solutions to numerical and qualitative problems. Neural Network is an information processing system that has been developed as generalization models of human cognition of neural biology.

In this paper we learn the neural network using PSO method in the field of prediction to solve XOR problem in 4 parities (2, 3, 4, and 5) instead of using Back Propagation (BP) or Genetic Algorithm (GA) methods. The suggested method is found to learn the NN by modifying the NN weights; this is done by calculating the fitness value which is considered as a threshold value.

THE COLLOCATION METHOD FOR SOLVING NONHOMOGENEOUS FUZZY BOUNDARY VALUE PROBLEMS

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Abstract

In this paper, the collocation method is considered and improved in order to solve nonhomogeneous fuzzy boundary value problems, in which the fuzziness appeared together in the boundary conditions and in the nonhomogeneous term of the differential equation. The method of solution depends on transforming the fuzzy problem to equivalent crisp problems using the concept of a-level sets.

THE GROUP ACTION OF THE CLASS WG_{ds}

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Abstract

Viana (2003), discussed WG_{ds}, a class of covariance matrices with group structure. In this paper, we discuss the use of group action for the class WG_{ds}, and we have found, by using stabilizer of 1_n, a unique subgroup of the group WG_{ds}, which is $a_1J_n + (1-na_1)A$.

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NEW GENERATORS $E_{i,j}^{n}$ AND $T_{i,j}^{n}$ FOR THE CLASS G_{ds}

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Abstract

Viana (2003) discussed the class G_{ds} and used permutation generators to generate its elements. In this paper, we use new generators $E_{i,j}^{n}$ and $T_{i,j}^{n}$ for the class G_{ds} which are different than the permutation generators and easer to use to generate the elements of the class G_{ds} .

GENERALIZATIONS AND BOUNDS FOR THE DEGREE OF SINGULARITY OF A GRAPH

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Abstract

Let u and v be two adjacent vertices of degree 2 (of degree 3) of the graph $H = P_2 x P_k$ (the graph $H = P_2 \otimes P_k$) k>1, let G_3 (G_5)denote the graph obtained by adjacent m>1 and n>1 new vertices with u and v, respectively. Also, let G_1, G2, G_4 and G_6 be the graphs obtained from the path P_k (cycle C_k, $P_2 x P_k$ b and $P_2 \otimes P_k$) by identifying end vertices of m_1 copies of a path P_n with some vertex u and identifying end vertices of m2 copies of a path Pm with some vertex v, then, the degree of singularity of such graphs is determined. These are, also generalizations for results 8.5 and 8.8 of [6]. Moreover, if G is an m-partite connected graph of order p, independence number α(G) and chromatic number χ(G), then a nice concrete relation $0 \leq s(G) \leq m(\alpha(G)-1)$ between the invariants of the graph G, which is a sharp upper bound for its degree of singularity was proved.

AN APPROXIMATE SOLUTION OF SOME CONTINUOUS TIME LINEAR-QUADRATIC OPTIMAL CONTROL PROBLEM VIA GENERALIZED LAGUERRE POLYNOMIA

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Abstract

This paper is concerned with the approximate solution of finite linear quadratic optimal control LQOC problem that are governed by a system of ordinary differential equation. The proposed method is classified as direct method, which is employed by using special technique to convert the LQOC problem into a quadratic programming problem. It is based on generalized Laguerre polynomials as a basis functions to approximate the system state variables by a finite length of the basis functions series of unknown parameters. Furthermore, some important formulas which are concerned the generalized Laguerre polynomials are derived and proved as essential in the proposed method, the proposed algorithm was illustrated by several examples.

APPROXIMATIONS OF UNBOUNDED FUNCTIONS

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Abstract

The purpose of this paper is to find the degree of best approximation of unbounded functions by means of the locally integral modulus.

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CONVERGENCE CHARACTERIZATION OF PROPER MAPPING

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Abstract

In this paper, we introduce a new characterization of proper mapping under certain condition on co-domain space (Y is a Hausdroff space).

STRONG AND WEAKER FORMS OF M-LINDELOF SPACES

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Abstract

In this paper, we state and prove several theorems concerning m-Lindelof spaces; also we introduce strong and weaker forms of m-Lindelof spaces. We state and prove several theorems about those forms.

APPROXIMATE METHOD TO SOLVE CAUCHY-TYPE SINGULAR INTEGRAL EQUATIONS

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Abstract

In this paper we are concerned with the approximate method to solve Cauchy-type singular integral equations (**CSIEs**). The mechanism of this method which is based on the approximation of the unknown function by appropriate finite series. Galerkin method has been used to build a system of linear equations which leads to determine the unknown coefficients, with two examples to show the simplicity and efficiency of the work.

MODIFICATION OF SUCCESSIVE APPROXIMATION METHOD TO SOLVE A SYSTEM OF LFIE OF THE 2nd KIND

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Abstract

In this paper we defined successive approximation and its modification for solving fredholm integral equation of 2nd kind , and suggest an algorithm for the successive and modification methods , effect of the method is clear through solving some neumerical example , the results indicated in tables (1,2,3 and 4) to show the accuracy of the results .

GORENSTEIN INJECTIVE, DERIVED CATEGORY AND LOCAL COHOMOLOGY

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Abstract

Let R be a commutative Noetherian ring of Krull dimension d admitting a dualizing complex D and let a be any ideal of R. In this paper we study the Gorenstein injectivity of local cohomology. We study the local cohomology of modules in the derive category and we compute their Gorenstein homological dimensions.

LINEAR QUOTIENTS AND SHELLABILITY

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Abstract

we study basic properties of linear quotients and its relation with shellability. We show that if a monomial ideal I has linear quotients, then each component of I and its squarefree part have linear quotients. This implies that if Δ is a shellable simplicial complex, then the ith facet skeleton of Δ is shellable for all i = 1, . . . ,dim(Δ).

SOME RESULTS OF SEQUENTIALLY COHEN-MACAULAY MODULES

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Abstract

In this paper we study the class of sequentially Cohen-Macaulay modules. Some basic properties and characterizations of these modules in terms of Ext-groups are presented.

ITERATIVE ALGORITHMS SYSTEMS OF EQUILIBRIUM PROBLEMS FIXED POINTS AND VARIATIONAL INEQUALITY

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Abstract

In this paper, we introduce iterative algorithms for finding a common element of the set of solutions of a system of equilibrium problems, the set of fixed point for a family of infinitely nonexpansive mappings and the set of solutions of the variational inequality for α-inverse-strongly monotone mappings in a Hilbert space.

Intuitionistic fuzzy sets clustering (IFSC) and its application: quality gaps services in servqual model

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Abstract

In this paper we present a new method for clustering when the sets are IFS. To reach this goal we use distance content in IFSs and hierarchical clustering methods. In the final section we introduce an application of this method for clustering of five gaps in servqual model.

TWO STRONG FORMS OF SEMI-REGULAR AND SEMI-NORMAL SPACES

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Abstract

The concept of q-semi-open sets in topological spaces was introduced in 1986 by T. Noiri. In the present paper we introduce and study two new strong forms of separation axioms via the concept of q-semi-open sets are called strongly semi-regular and strongly semi-normal spaces which are stronger than s-regular and s-normal, respectively. Also, we investigate some charaterizations, properties and relations among these separation axioms with other types of separation axioms and functions.

Calculation Lyapunov Exponents for Types of Local Bifurcation

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Abstract

The bifurcation theory is the mathematical study of how and when the solution to a problem changes from there only being one possible solution, to there being two, which is called a bifurcation. Most commonly used in the mathematical study of dynamical systems, the bifurcation occurs when a small smooth change made to the parameter values (the bifurcation parameters) of a system causes a sudden "qualitative" or topological change in its long term dynamical behavior.

In this work, we will recall one parameter of one dimensional vector field to undergo a saddle node bifurcation, transcritical bifurcation and pitchfork bifurcation. Also, one parameter of two dimensional vector fields to undergo a Hopf bifurcation.

Lyapunov exponents measure the rate at which nearby orbits converge or diverge. There are as many Lyapunov exponents as there are dimensions in the state space of the system, but the largest is usually the most important. The goal of our work is to calculate Lyapunov exponent to types of local bifurcation by Mathlab program .We get the saddle node bifurcation has positive Lyapunov exponent if $\mu \leq -1$,for all the domain. Also, the transcritical bifurcation has positive Lyapunov exponent if $\mu \leq -1$,for all the domain.But,the pitchfork bifurcation has negative Lyapunov exponent, for all $\mu \in R$,for all the domain. The last bifurcation is the Hopf bifurcation has positive Lyapunov exponent at (0,0) if $\mu > 0$,but, otherwise the Hopf bifurcation t has negative Lyapunov exponents.

COMPARISON BETWEEN LBFGS ALGORITHM AND FREE SELF-SCALING VM ALGORITHS For UNCONSTRAINED OTIMIZATION

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Abstract

In this paper, we compare between the limited memory BFGS algorithm, LBFGS developed by Nocedal (1980) and free self-scaling VM algorithm which I call MBFGS algorithm.
The free self-scaling VM algorithms is the best due to its low storage requirement and in computational labor time and also able to solve large-scale problems with 10^6 variables successfully while other methods fail.

HYPERSOLVABLE COMPLEX REFLECTION ARRANGEMENTS

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Abstract

The purpose of this study is to analyze the complex reflection arrangements A(G24). During our study work we succeed to answering the open problem suggested by Jambu and Papadima in [Jambu M., Papadima S., 1998] "is there an arrangement A, hypersolvable and free, such that L(A) > rk(A)?", when we prove that A(G24) is a rank three hypersolvable arrangement with a composition series of length L(A(G24)) = 9, and A(G24) is not supersolvable arrangement.
Also we proved that A(G24) is not hypersolvable arrangement when L(A(G24)) is equal to "3".
We compute the Poincare polynomials of A(G24), Also we prove that the action of G24 onA(G24) preserves the hypersolvability conditions.

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