Professor Iulian Coroian at his 65th anniversary

Vasile Berinde

The Department of Mathematics and Computer Science from the North University of Baia Mare has celebrated this year professor Iulian Coroian on his 65th anniversary.

In a 43 years career as a mathematician and professor in the same institution, professor Iulian Coroian has brought a major contribution to the development of the mathematical education in Baia Mare

Born on February the 3-rd 1938 in Dej, Cluj county, Iulian Coroian attended secondary school "Andrei Mureşan" in his native town and took his university degree in 1960, at the Faculty of Mathematics and Physics of the "Babeş-Bolyai" University in Cluj-Napoca.

He started his teaching career at "Şcoala Medie nr. 1", now the "Gheorghe Şincai" National College, where he taught mathematics for one year only. In 1961 he was accepted as assistant professor at the the new "Pedagogical Institute of Baia Mare", which later became the "Higher Training Institute" and finally the "North University of Baia Mare". Here, step by step, Iulian Coroian became senior lecturer, associate professor and, in 1990, he got the full-professorship degree.

Among the positions he has held at times we mention :

-deputy-dean of the Engineering College, Ianuary 1990 – September 1990;

-dean of the Faculty of Letters and Sciences, 1990 – 1995;

-head of the Department of Mathematics and Computer Science,1997-1999;

-president of the Romanian Society of Mathematical Sciences, Maramureş county branch, 1981 – 2000;

-editor in chief of the Bul. Ştiinţ. Univ. Baia Mare, Series B, Fasc. Matematică Informatică, from 1990 - present;

-member of the American Mathematical Society, as well as of the European Mathematical Society;

-reviewer at "Mathematical Reviews" and "Zentralblatt für Mathematik".

Iulian Coroian got his PhD in Mathematics in 1979, at the "Babes-Bolyai" University from Cluj-Napoca, under the supervision of the honoured Professor Dumitru V. Ionescu with the thesis "Contributions to the numerical integration of differential equations by Runge-Kutta methods ".

Iulian Coroian has a wonderful family: wife Felicia Victoria and two children, Dan Coroian and Lia Petracovici, both also matematicians and PhD's, working now in U.S.A.

During his long didactical career, Professor Coroian has taught many courses : Arithmetics and number theory, Complex analysis, Probability, Ordinary differential equations, Integral equations. In the last years professor Coroian has been teaching Analysis (an extensive course of Calculus), Partial differential equations and Numerical solutions of differential and integral equations.

The main area of research of Professor Iulian Coroian is numerical analysis with two special subjects: approximate solutions of equations in Banach spaces by iterative methods and numerical solutions of initial value problems for differential equations and integral equations. But in his works we can find many other themes.

We mention some outstanding contributions of Professor I. Coroian:

- some theorems of Kantorovich type regarding the existence of the solutions of equations and the convergence of some iterative methods (Newton's method and Newton like methods) were proved;

- many high order explicit Runge - Kutta methods have been derived and error estimation formulas for these methods were given;

- high order quadrature formulas were obtained from high order Runge - Kutta methods;

- a class of Runge - Kutta - Fehlberg methods of arbitrary order for Volterra integral equations were constructed;

- many classes of so called "nonlinear explicit Runge - Kutta methods" were derived by professor Coroian and the A-stability and L-stability of such methods were proved;

- the general linear methods, especially Diagonally Implicit Multi Stage Integration Methods (DIMSIMs) were also investigated by professor Coroian and some particular methods of this type have been proposed;

- the A-stability and L-stability of semi-explicit (diagonally implicit) Runge-Kutta were investigated and classes of such methods were proposed.

We mention one theorem in literature which is called after Professor Coroian's name, see Theorem 7 (Janko-Coroian), included in [1] as a typical result for the theorems which weaken the C^2 condition in Kantorovich

type theorems regarding the convergence of Newton method, to the Hölder continuity condition. This result is taken from [2].

On the occasion of his 65th anniversary, the Department of Mathematics and Computer Sciences, the Faculty of Sciences, all colleagues, friends and collaborators from the North University of Baia Mare wish Professor Coroian on much health and many future accomplishments in the field of mathematical sciences and in his life.

A selective list of publications

a) ***Text books and books***

1. Aritmetica şi elemente de teoria numerelor, Institute for High Education, Baia Mare, 1975

2. Matematici generale. Curs şi culegere de probleme, Institute for High Education, Baia Mare,1980

3. Analiză matematică I, North University of Baia Mare,1997

4. Culegere de probleme de analiză matematică (with Lia Petracovici), North University of Baia Mare, 1997

5. Matematici cu aplicaţii în economie (with Maria Pop), Editura Universităţii de Nord Baia Mare, 2001

6. Analiză matematică. Integrarea, Editura Risoprint Cluj-Napoca, 2001

7. Analiză matematică. Calcul diferenţial, Editura Risoprint Cluj–Napoca, 2003

8. Introducere in ecuaţii cu derivate parţiale, Editura Risoprint Cluj–Napoca, 2003

b) ***Articles***

1. Metoda Newton-Kantorovich pentru ecuaţii operaţionale neliniare depinzând de un parametru (with Bela Janko), Studii şi Cercetări Matematice, Academia RSR, 20, 10, 1490-1495(1969)

2. Asupra metodelor iterative de tip Newton, Studii şi Cercetări Matematice, Academia RSR, 22, 1, 31-38(1970)

3. Asupra metodei Runge - Kutta - Fehlberg pentru ecuaţia integrală neliniară Volterra, Studii şi Cercetări Matematice, Academia RSR, 26, 4, 505-511(1974)

4. Formule de tip Runge - Kutta pentru ecuaţia integro-diferenţială Volterra, Studii şi Cercetări Matematice, Academia RSR, 26, 4, 513-520(1974)

5. An error estimation formula for numerical integration methods of high order, Mathematica-Revue d'analyse numerique et de theorie de l'apprroximation, Academia RSR Filiala Cluj-Napoca, 22, 1, 241-245(1980)

6. On a class of DIMSIMs methods, Revue d'analyse numerique et de theorie de l'approximation, Academia Romana, Filiala Cluj-Napoca, 29, 1, 15-21 (2000)

7. Asupra convergenţei procedeului lui Newton - Kantorovici pentru rezolvarea ecuaţiilor operaţionale neliniare(with Bela Janko and Martin

Balazs), Analele Universităţii Timişoara, Seria Matematică-Fizică, 6, 188-200 (1968)

8 Despre metode de tip Newton pentru ecuaţii neliniare, Buletinul Şiintific al Institutului Pedagogic Baia Mare, Seria B, vol.I, 319-326 (1969)

9. Despre o generalizare a metodei lui Newton - Kantorovici, Buletinul Ştiintific al Institutului Pedagogic Baia Mare, Seria B, vol.II, 195-201 (1970)

10. Obţinerea unor formule de tip Runge - Kutta - Fehlberg pentru aproximarea soluţiei ecuaţiei integrale Volterra, Buletinul Ştiinţific al Institutului Pedagogic Baia Mare, Seria B, vol III, 243-248 (1973)

11. Aproximarea soluţiei unui sistem de ecuaţii integro-diferenţiale de tip Volterra, Buletinul Ştiintific al Institutului Pedagogic Baia Mare, Seria B, vol IV, 257-262 (1773)

12. A fifth order family of Runge-Kutta type methods, Studia Universitatis "Babeş-Bolyai" Cluj-Napoca, Matematica, 14, 2, 57-63 (1979)

13 Unele formule de tip Runge - Kutta cu ordinul de exactitate 4 şi intervalul de absolut stabilitate mare, Buletinul Ştiintific al Institutului de Învăţământ Superior Baia Mare, Seria B, V, 9-16 (1980)

14. O metodă de integrare numerică cu ordin de exactitate înalt şi o formulă de cuadratură corespunzătoare, Buletinul Ştiinţific al Institutului de Învăţământ Superior Baia Mare, Seria B, V, 20-25 (1980)

15. Unele formule de cuadratură deduse din formule de integrare numerică, Buletinul Ştiinţific al Institutului de Învăţământ Superior Sibiu, Seria Matematică-Tehnică, 4, 10-16 (1981)

16. O metodă de tip Runge - Kutta cu estimarea erorii de trunchiere, Buletinul Ştiinţific al Institutului de Învăţământ Superior Baia Mare, VI, 11-15 (1982)

17. Some Numerical Integration Methods for Second Order Differential Equation Without First Derivative, Analele Universităţii Timişoara, Seria Ştiinţe Matematice, 22, 1-2, 21-29 (1984)

18. O metodă numerică pentru o clasă de probleme singulare cu valori iniţiale, Bul. Şiinţ. Univ. Baia Mare, Seria B, Matematică-Informatică, VII, 1-2, 67-74 (1991)

19. Caracterizarea funcţiilor cu proprietatea lui Darboux. Aplicaţii, Lucrările Seminarului de Creativitate Matematică, Universitatea Baia Mare, I, 125-131 (1992)

20. On the common origine of some iterative methods (în colaborare cu Lia Petracovivi), Bul. Şiinţ. Univ. Baia Mare, Seria B, Matematică-Informatică, X, 39-44 (1994)

21. Despre argumentul unui număr complex, Lucrările Seminarului de Creativitate Matematică, Universitatea Baia Mare, IV, 99-104 (1994)

22. Observaţii privind graficul unei funcţii raţionale şi legătura cu rezolvarea ecuaţiei de gradul trei, Lucrările Seminarului de Creativitate Matematică, Universitatea Baia Mare, V, 65-70 (1995-1996)

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24. Cugetări despre matematică, Lucrările Seminarului de Creativitate Matematică,Universitatea Baia Mare, V, 139-142 (1995-1996)

25. On the general linear integration methods, Bul. Ştiinţ. Univ. Baia Mare, Seria B, Matematică-Informatică, XIII, 1-2, 51-57 (1997)

26. A family of DIMSIMs methods of order 4, Studia Universitatis Vasile Goldiş Arad, Seria B, 8, 159-163 (1998)

27. Professor Ion Pavaloiu at his 60-th Anniversary, Bul. Ştiinţ. Univ. Baia Mare, Seria B, Matematică-Informatică, XV, 1-2, 1-8 (1999)

28. Stable explicit Runge - Kutta methods, Bul. Ştiinţ. Baia Mare, Seria B, Matematică-Informatică, XVI, 2, 197-202(2000)

29. Asupra dezvoltării în serie de puteri a inversei unei funcţii şi a funcţiei compuse, Lucrările Seminarului de creativitate matematică, 10, 65-72 (2001)

30. Low order stable semi-explicit Runge - Kutta methods, Bul. Ştiinţ. Univ. Baia Mare, Seria B, Matematică-Informatică, XVIII, 1, 15-23 (2002)

31. On the implicit function theorem, Lucrările Seminarului de Creativitate Matematică, 11, 43-51 (2002)

32. Despre estimarea erorii la unele metode de tip Runge-Kutta, Buletinul Ştiinţific al Institutului Politehnic Cluj-Napoca dedicat "Lucrărilor Sesiunii Ştiinţifice Jubiliare" cu prilejul aniversării a 30 ani de existenta a Institutului Politehnic Cluj, 28-29 octombrie 1978, 7-12 (1978)

33. Asupra unei metode semiimplicite de integrare numerică a ecuaţiilor diferenţiale de ordinul doi, "Lucrările Conferinţei Naţionale de Matematică Aplicată şi Mecanică", Institutul Politehnic Cluj-Napoca, 29-30 octombrie 1988, 262-270 (1988)

34. On the solving of nonlinear operation equations in Banach spaces (with Bela Janko and Aurel Gaidici),"Lucrările Colocviului Internaţional de teoria funcţiilor convexe cu aplicaţii în calculul numeric", Institutul de Calcul al Academiei RSR Filiala Cluj şi Societatea de Ştiinţe Matematice din Romania, 1-3 iulie 1965, 44-46 (1965)

35. On Runge-Kutta Methods for Differential-Algebraic Systems (with Dan Barbosu and Nicolae Pop), "International Computer Science Conference Micro CAD'97", University of Miscolc, Hungary, february 26-28, 1997, 45-51 (1997)

36. Birkoff-Hermite Bivariate Spline Interpolation Procedures (with Dan Barbosu and Nicolae Pop), "International Computer Science Conference Micro CAD'97", University of Miskolc, Hungary, february 26-28, 1997, 53-59 (1997)

37. Preconditioned Uzawa Algorithm for Contact Problems (with Nicolae Pop and Dan Barbosu), "International Computer Science Conference

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43. On the stability of Runge - Kutta methods, Bulletins for Applied and Computer Mathematics, BAM 1994-C/2002, 139-147 (2002)

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[3] Pop, Maria S., *Professor Iulian Coroian at his 60th anniversary*, Bul. Ştiinţ. Univ. Baia Mare, 14(1998), i-vi

North University of Baia Mare,
Department of Mathematics and Computer Science
Victorie1 76, 430122, Baia Mare, Romania
E-mail address: vberinde@ubm.ro; vasile_berinde@yahoo.com;