

CURRICULUM VITAE

1. PERSONAL DATA

JANA MADJAROVA, date of birth 26 March 1957 (Sofia, Bulgaria)

Professional address: Dept of Mathematical sciences, Chalmers University of Technology, 412 96 Göteborg

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2. EDUCATION

Primary school: Sofia, 1963–1968

Secondary school: Sweden (Stockholm and Vänernsberg), 1968–1972

Upper secondary school: Sofia, 1972–1975, specialization in Mathematics, Numerical methods and FORTRAN programming

University studies: Mathematics at Sofia University "St. Kliment Ohridski", 1975–1980, Master programme in Differential equations 1978–1980, M.Sc. 1980

PhD student at Sofia University, 1982–1985

PhD in Mathematics, Differential equations, from Sofia University, 1988

Language skills: Bulgarian, Russian and Swedish on native language level (S-5 on the ILR scale); English, German, French fluently, spoken and written (English and German S-4+, French S-3); communicates with ease in Italian, spoken and written (S-2)

3. EMPLOYMENT HISTORY

Programmer at the Institute of Computer Science, Sofia, 1980–1981

Lecturer in Mathematics at the Institute for Foreign Students in Sofia, 1981

PhD student at Sofia University, 1982–1985

Institute of Mathematics, Bulgarian Academy of Sciences, 1985–1989

Joint Institute for Nuclear Research, Dubna, November 1987 – March 1988; December 1988 – May 1989

Lecturer at the Center for Applied Mathematics, Technical University of Sofia, 1989–1991

Senior Lecturer at Mathematical Sciences, Chalmers/University of Gothenburg, 1991–2013

Professor (without chair) at Mathematical Sciences, Chalmers/University of Gothenburg, 2013–

4. COMMISSIONS AT CHALMERS AND THE UNIVERSITY OF GOTHENBURG

Member of the Faculty senate of Chalmers, 1999–2005

Vice chairman of the Collegium (staff organization) of the School of Mathematical and Computing Sciences, 2003–2004

Deputy head of the division of Mathematics, with staff liability for PhD students and student assistants, 2004–2011

Member of the Board of the Faculty of Science at the University of Gothenburg, 2012–

Member of the Programme Council for the programme of Engineering Physics at Chalmers, 2003–2010

Member of the Programme Council for the programme of Engineering Mathematics at Chalmers, 2011–

Programme Director of the programme of Engineering Physics, Chalmers, 2011–

5. OTHER COMMISSIONS

Representative of Chalmers in the Programme council for science and technology at the Fässberg upper secondary school, 96/97–10/11

Member of the Mathematical Contest Committee at the Swedish Mathematical Society, 1999–

Chair of the Mathematical Contest Committee at the Swedish Mathematical Society, 2011–

Member of the Board of the Swedish Mathematical Society, 2007–

6. SCIENTIFIC INTERESTS

My scientific interests focus on the area of partial differential equations. My PhD thesis was on boundary value problems for fully nonlinear elliptic partial differential equations. Later I have worked on systems of difference equations and some applications in physics, on error estimates for parabolic problems, and on discrete potential theory.

7. TEACHING EXPERIENCE

INSTITUTE FOR FOREIGN STUDENTS SOFIA, 1980–1981;

SOFIA UNIVERSITY, Students of Mathematics, Physics, Chemistry, 1985–1991;

TECHNICAL UNIVERSITY OF SOFIA, various engineering programmes (civilingenjörsprogram), 1989–1991;

CHALMERS UNIVERSITY OF TECHNOLOGY, the engineering programmes (civilingenjörsprogram) F, Kf, TM, AT, E, V, D, MPLOL;

UNIVERSITY OF GOTHENBURG, Programmes of Mathematics, Biology, Geology, Chemistry; the programme Problem Solving in Science; Summer course in Geometry, 1994, 1996, 1998; "Mathematics to play with", training course for primary and secondary school teachers, 09/10; Courses for PhD students;

Invited lecturer at the Klein Days in Sweden at the Institute Mittag-Leffler, 2011 and 2012 (a training event for upper secondary school teachers);

Talks and seminars on problem solving, with follow-ups, at the Educational Days for Teachers 2009, Göteborg (SMS and NCM), and Matematikbiennalen 2010 (conference for teachers of mathematics), Stockholm;

Invited talk "Geometry in Art", Gerlesborgsskolan, 1995;

Talk "Art and Mathematics", Vetenskapsfestivalen (The Science Festival) 2008 (Nordstan, Göteborg), and 2009 (at the Dept of mathematical Sciences).

8. PEDAGOGICAL PRIZES

Chalmers Pedagogical Award 1994 (collective, all teachers in mathematics at the V-programme)

The Golden apple 1997 (pedagogical prize of Engineering Physics)

Nominated for Chalmers Pedagogical Award 1998

Chalmers Pedagogical Award 1999

9. PROGRAMME DEVELOPMENT

UNIVERSITY OF GOTHENBURG: *Problem Solving in Science*.

CHALMERS: *Engineering Physics*

10. WORKS WITH PEDAGOGICAL ORIENTATION

(1) J. Vassileva, R. Radev, B. Dimchev, JM: TOBIE: An experimental ICAI software in mathematics, CALISCE (Proceedings of the International Conference on Computer Aided Learning and Instruction in Science and Engineering), Ecole Polytechnique Federale de Lausanne, September 1991, p. 145-150.

(2) Mathematics for Grades 6-7 in Examples and Problems (additional reading), p. 111–136 (chapter "Random or Determined?"), Regalia, Sofia, 1994

(3) ICMI (International Commission on Mathematical Instruction) Perspectives on the teaching of geometry for the 21st century, Study on Geometry, Catania, 28 September – 2 October 1995

(4) JM, M. Persson: Rum och geometri (Space and Geometry), Nordiskt teknikkonferens, Copenhagen, 15–16 June 2009

(5) Martin Cederwall, JM: Antagningsprovet i matematik och fysik - förhoppningar och erfarenheter (The Admission Test in Mathematics and Physics - Expectations and Experience), 3:e Utvecklingskonferensen för Sveriges ingenjörsutbildningar (3rd Development Conference for the Swedish Engineering Programmes), Norrköping, 30 November – 1 December 2011

(6) Mattelyftet 2013, texts (with Samuel Bengmark)

(7) On the teaching and applications of classical geometry in university mathematics, Colombian Mathematical Congress, July 2013 (semi-plenary talk)

11. THE MATHEMATICS AND PHYSICS TEST

The goal of the Mathematics and Physics Test is to provide yet another selection tool in order to identify students with the ability to follow and finish successfully an education in engineering and/or architecture. The test was launched in May 2007, to begin with only for the Chalmers programmes Engineering Physics, and Architecture and Engineering. At present, the test is used for four Chalmers programmes (Engineering Physics, Engineering Mathematics, Architecture and Engineering, and Chemical Engineering with Physics). Since 2011 it has also been bought by the Royal Institute of Technology (Stockholm), and is currently used for four of their programmes (Engineering Physics, Vehicle Engineering, Electrical Engineering and Simulation Technology and Virtual design). The mathematics part of test is designed by me, and the physics part by Martin Cederwall (Fundamental Physics, Chalmers).

12. MATHEMATICAL CONTESTS

I am currently chair of the Contest committee organizing the Swedish Mathematical Contest (Olympiad). Original problems I have proposed have been chosen many times for the Swedish competition, and a few times for international competitions (Baltic Way and Nordic Mathematical Contest).

Since 2002 Victor Ufnarovski from Lund and I give a correspondence course for the finalists of the Swedish competition, and select and train the Swedish team for the International Mathematical Olympiad. During the last couple of years we have also worked at a joint Nordic training camp in Denmark.

Coordinator (judge) at the IMO in Madrid 2008, Amsterdam 2011, Santa Marta (Colombia) 2013, invited by the organizers.

13. STUDENT SUPERVISION

Supervision of many projects during the 90s and 00s in the s.c. Special Course in Mathematics, University of Gothenburg;

Supervision of two B.Sc. projects, University of Gothenburg, 1996 and 2001;

(Second) assistant supervisor for Anna Karlsson (PhD student at Fundamental Physics), 2011–.

14. EVALUATION TASKS

Member of grading committees (PhD in theoretical physics), on several occasions.

Pedagogical expert for senior lecturer positions, Göteborg, 1995.

External expert for senior lecturer positions, Lund, 2012.