

## **CURRICULUM VITAE:** Prof. Norbert Euler

**Date:** 13 May 2019.

### **PERSONAL DETAILS**

Place of birth: Darmstadt (Germany), 25 May 1964.

Marital status: Married, two children

Nationality: German

Current Permanent Residence: Sweden

Email address: euler199@gmail.com

### **AFFILIATION:**

**Full Professor of Mathematics** (February 2002 to April 2019)

Division of Mathematics

Department of Engineering Sciences and Mathematics

Luleå University of Technology, Sweden

**Research Professor** (since May 2019 - ongoing)

Centro Internacional de Ciencias

Av Universidad s/n Colonia

Chamipla, 62210 Cuernavaca, Morelos

Mexico

**Editor in Chief** (since January 1997 - ongoing)

Journal of Nonlinear Mathematical Physics

Taylor & Francis, London

United Kingdom

### **ACADEMIC QUALIFICATIONS**

1. **Baccalaureus Scientiae (B.Sc)** (Mathematical Physical Science).  
Awarded in 1986. Rand Afrikaans University, Johannesburg, RSA  
Main subjects: Mathematics, Theoretical Physics, Physics.
2. **Baccalaureus Scientiae cum Honoribus (B.Sc Hons.)** in  
Mathematical Physics/Theoretical Physics. Awarded *Cum Laude* in  
1987. Rand Afrikaans University, Johannesburg, RSA

Main subjects: Lie Algebras, General Relativity, Mathematical Methods in Physics, Quantum Field Theory, Electromagnetic Wave Theory, Statistical Physics, Solid State Physics.

3. **Magister Scientiae (M.Sc)** Mathematical Physics/Theoretical Physics.  
Awarded *Cum Laude* 1988 Rand Afrikaans University, Johannesburg, RSA.

Thesis title: *Nonlinear field equations and Painlevé test.*

Advisor: Willi-Hans Steeb.

4. **Philosophiae Doctor (Ph.D)** in Applied Mathematics.

Awarded 1992 by the Rand Afrikaans University, Johannesburg, RSA

Dissertation: *Continuous symmetries, Lie algebras and differential equations.* Advisor: Willi-Hans Steeb

5. **Docent (Associate Professor)** in Mathematics.

Awarded in Dec. 1999 by Luleå University of Technology

Referees:

1) M. Lakshmanan, Bharathidasan University, India

2) M. Tajiri, Osaka Prefecture University, Japan

6. **Professor of Mathematics.**

Awarded in February 2002 by Luleå University of Technology

Referees:

1) Boris A Kupershmidt, The University of Tennessee

Space Institute, USA.

2) D. Leites, Stockholm University, Sweden.

## ACADEMIC APPOINTMENTS

1. **January 1988– December 1990:**

**Visiting Lecturer**, Department of Theoretical Physics,  
Rand Afrikaans University, RSA.

2. **January 1990–September 1992:**

**Lecturer** (permanent), Department of Applied Mathematics,  
Rand Afrikaans University, RSA.

3. **September 1992–December 1994:**

**Assistant Professor** (permanent),  
Department of Applied Mathematics,  
Rand Afrikaans University, RSA.

4. **October 1995 – April 1996:**  
**Visiting Researcher and Lecturer**, Department of Mathematics,  
 Technical University of Darmstadt, Germany.
5. **October 1996 – March 1999:**  
**Visiting Assistant Professor**, Department of Mathematics,  
 Luleå University of Technology, Luleå, Sweden.
6. **April 1999 – December 1999**  
**Assistant Professor** (permanent), Department of Mathematics,  
 Luleå University of Technology, Luleå, Sweden.
7. **December 1999 – March 2002**  
**Associate Professor** (permanent), Department of Mathematics,  
 Luleå University of Technology, Luleå, Sweden.
8. **February 2002 – April 2019**  
**Full Professor** (permanent), Department of Mathematics (now Division of Mathematics in the Department of Engineering Sciences and Mathematics)  
 Luleå University of Technology, Luleå, Sweden.
9. **May 2019 – ongoing**  
 Research Professor  
 Centro Internacional de Ciencias  
 Av Universidad s/n Colonia  
 Chamipla, 62210 Cuernavaca, Morelos  
 Mexico

## EDITORIAL APPOINTMENTS

- **Editorial Board Member.** July 1995–June 1997:  
*“Journal of Nonlinear Mathematical Physics”* Published by Taylor & Francis  
<http://www.tandfonline.com/loi/tnmp20>
- **Editor-in-Chief.** June 1997– ongoing:  
*“Journal of Nonlinear Mathematical Physics”* Published by Taylor & Francis  
<http://www.tandfonline.com/loi/tnmp20>

- **Editorial Board Member.** June 2009 – ongoing:  
*Labochevskii Journal of Mathematics*, Published by Springer.
- Editor of the book series *Atlantis Studies in Mathematical Physics: Theory and Applications*  
January 2013 to December 2017. Published by Atlantis Press

#### INVITED RESEARCH VISITS:

1. Department of Mathematics, **University of Catania**:  
Duration of Visit: 2 weeks during 1993.  
Invite by Prof. M. Torrisi
2. **Institute of Mathematics, Ukrainian Academy**, Kiev, Ukraine:  
Duration of Visit: 7 months during 1994 and 4 months during 1995.  
Invited by Prof. W.I. Fushchich
3. **International Scientific Institute**, Cuernavaca, Mexico:  
Duration of Visit: 2 weeks during 1999.  
Invited by Prof. F. Calogero
4. Department of Mathematics, **University of Cadiz**, Cadiz, Spain:  
Duration of Visit: 2 weeks during 2000.  
Invited by Prof. M.L. Gandarias
5. **Mittag-Leffler Institute**, Stockholm, Sweden:  
Visiting Professor: 1 months during November 2005.  
Invited by Prof. A. Constantin (Lund University).  
Programme title: “*Wave Motion*”.  
Organizers: A. Constantin, Lund; C. Dafermos, Brown; H. Holden, Trondheim; K. H. Karlsen, Trondheim; W. Strauss, Brown. Meeting took place during October 2005–December 2005.
6. **University of Kwazulu-Natal**, Durban, South Africa:  
Visiting Professor: 3 months during April to June 2006.  
Invited by Prof. P.G.L. Leach (Department of Mathematics, University of Kwazulu-Natal).
7. **Erwing Schrödinger Institut of Mathematical Physics**, Vienna, Austria:  
Visiting Professor: 2 weeks during May-June 2011.  
Invited by Prof. A. Constantin (University of Vienna).

8. **New Jersey Institute of Technology, Department of Mathematics**, NJ, USA:

Sabbatical Leave: 3 months during May to August 2012.

Financed by a sabbatical grant awarded by the Wenner-Gran Foundation in Sweden.

Invited by Prof. D. Blackmore (NJIT).

9. **University of Santiago, Chile, Department of Mathematics and Computational Sciences**, Santiago, Chile:

Visiting Professor: 19 - 28 April 2018.

Invited by Prof. E. Reyes (University of Santiago)

**RESEARCH SUBJECT:**

Nonlinear Ordinary- and Partial Differential Equations in Mathematical Physics: Integrability; Linearization; Continuous-, Discrete-, and Nonlocal-Symmetry; Recursion Operators, Solution Methods.

**AMS Mathematics Subject Classification:**

37K35, 37K10, 37K55, 37K15, 37J15, 35Q53, 35Q55, 34A05, 34A25, 34A34, 34M55.

**76 research articles** (in peer-reviewed journals) as well as **10 books** have been published to date (details are given below).

**My current Web of Science h-Index: 12**

**My top three cited papers according to the Web of Science:** (status on 13 May 2019)

1. Euler N, Wolf T, Leach P G L and Euler M, Linearisable Third Order Ordinary Differential Equations and Generalised Sundman Transformations: The Case  $X''' = 0$ , **Acta Appl. Math.** **76**, 89–115, 2003 (**cited 48 times**).
2. Euler N and Euler M, Sundman Symmetries of Nonlinear Second-Order and Third-Order Ordinary Differential Equations, **J. Nonlinear Math. Phys.**, **11**, 399–421, 2004 (**cited 34 times**).

3. Euler M, Euler N and Leach P G L, The Riccati and Ermakov-Pinney Hierarchies , **J. Nonlinear Math. Phys.**, **14**, 290–302, 2007 (**cited 25 times**).

## TEACHING ACTIVITIES:

### Undergraduate:

- Ordinary differential Equations (2nd year level: 100+ students))
- Classical Mechanics (1st year level: 100+ students)
- Vector Analysis (2nd year: 100+ students)
- Linear Algebra: Euclidean Spaces (2nd year level: 1000 students)
- Linear Algebra: Generalized Vector Spaces (2nd year level: 100+ students)
- Differential Calculus (1st year level: 150+ students)
- Integral Calculus (2nd year level: 100+ students)
- Algebraic Methods in Physics (4th year level: 20+ students)

**Examiner** for the course *Mathematics for Engineers: Integral Calculus and Linear algebra* (2nd year level: 600+ students)

### Graduate Teaching:

- Lie Point Symmetry Analysis for Differential Equations (PhD level)
- Algebraic Methods in Physics (PhD level)

**Supervision** of Master (MSc) and Licentiate students in Applied Mathematics:

- R. Näslund (licentiate): Some studies within applied mathematics with focus on conditional symmetries of partial differential equations and bending waves in plates (2005)
- A. Köhler (MSc): On Approximate and Conditional Symmetries of Evolution Equations (1994).

- (Co-supervisor with M. Euler) A. Strömberg and E. Åström (Masters): Transformation between a generalized Emden-Fowler equation and the first Painlevé transcendent (2003).
- C. Türk (Masters): Discrete symmetries of nonlinear ordinary differential equations (2003)
- O. Lindblom (Licentiate): Investigation of bending waves in plates and properties of nonlinear wave equations (1997)
- (Co-supervision with M. Euler) N. Petresson (Master): Classes of linearisable hierarchies of evolution equations in 1+1 dimensions (2002)
- (Co-supervision with M Euler) J. Häggblad (Masters): Symmetries and recursion operators of nonlinear differential equations (2006)
- J.D. Duxans (Masters): Potential symmetries (2009)

**Supervision of PhD in Applied Mathematics:**

- O. Lindblom: Painlevé analysis and transformations for nonlinear partial differential equations (2001)

**RESEARCH-RELATED PROFESSIONAL SERVICE:**

- Member of the **Global Organizing Committee** for the *3rd World Congress for Nonlinear Analysts* held in Catania (Italy) July 2000
- **External Examiner for a Ph.D:**  
Place: Department of Mathematics, **Cadiz University, Spain.**  
Student: M.S. Bruzon.  
Title of Thesis: *Diffusion equations with variable coefficients: Symmetry Properties*  
Supervisor: M. Luz Gandarias.  
Examinators: N. Euler and M. Euler.  
Date of Defence: April 2000.  
Result of Evaluation: Pass.
- **External Examiner for a Ph.D:**  
Place: Department of Mathematics, **Cairo University, Egypt.**  
Student: Amany Saad Abou-Srea  
Title of Thesis: *Singular Manifold Analysis and Integrability Properties*

*of Some Systems of Nonlinear Partial Differential Equations.*

Supervisor: H. I. A Gawad

Examinator: N. Euler

Date of Examination: April 2003.

Result of Evaluation: Pass.

- **Referee as Pedagogic Expert for an Associate Professorship:**  
Docent Lecture presented by Dr. Liuming Wu.  
Discipline: Organic Chemistry.  
Institution: Luleå University of Technology.  
Title of Talk: *Surface Complexation at Solid-Water Interface.* Date of Presentation: June 9, 2000.
- **Referee for a Full Professorship in Canada:**  
Candidate: Dr. Thomas Wolf.  
Discipline: Mathematics  
Institution: University of Brock, Canada.  
Date of Evaluation: December, 2002.
- **Main Organizer of the conference titled *Nonlinear Mathematical Physics: Twenty Years of JNMP*** at the Sophus Lie Center in Nordfjordeid, Norway  
June 4 - 14, 2013.
- **Main Organizer of the conference titled *The 2nd JNMP Conference in Nonlinear Mathematical Physics: 2019***  
to take place at the University of Santiago, Chile, May 26 to June 4, 2019.
- **Reviewer** of research papers for many journals, including the following:  
*Journal of Mathematical Physics* (New York, USA)  
*Journal of Computational and Applied Mathematics* (Wilrijk, Belgium)  
*Journal of Nonlinear Mathematical Physics* (Luleå, Sweden)  
*Journal of Computational and Applied Mathematics* (Elsevier)  
*Electronic Journal of Differential Equations* (SW Texas State Univ.)  
*Philosophical Transactions of the Royal Society: Mathematical, Physical and Engineering Sciences* (The Royal Society, UK)  
*Reports in Mathematical Physics* (Kraków, Poland), and others.

**Talks have been presented at many conference and events since 1987:** (details are not listed here)



### List of Published Peer reviewed Articles:

1. Steeb W-H and Euler N, *Painlevé Test of the McKean and Carleman Models*, **Lett. Math. Phys.**, **13**, 234–236, 1987
2. Steeb W-H and Euler N, *Lie and Lie Bäcklund Vector Fields and Painlevé Test for a Class of Scale Invariant Partial Differential Equations of First Order*, **Prog. Theor. Phys.** **78**, 214–223, 1987.
3. Euler N, Leach P G L, Mahomed F M and Steeb W-H, *Symmetry Vector Fields and Similarity Solutions of a Nonlinear Field Equation Describing the Relaxation to a Maxwell Distribution*, **Int. J. Theor. Phys.** **27**, 717–723, 1988.
4. Steeb W-H and Euler N, *A Note on Nambu Mechanics and Painlevé Test*, **Prog. Theor. Phys.** **80**, 607–610, 1988
5. Euler N and Steeb W-H, *Painlevé Test and Discrete Boltzmann Equations*, **Aust. J. Phys.** **42**, 1–10, 1989.
6. Euler N and Steeb W-H and Cyrus K, *On exact solutions for damped anharmonic oscillators*, **J. Phys. A: Math. Gen.** **22**, L195–L199, 1989.
7. Euler N and Steeb W-H, *Lie-Symmetry Vector Fields for Linear and Nonlinear Wave Equations*, **Int. J. Theor. Phys.** **28**, 1397–1403, 1989.
8. Euler N and Steeb W-H, *Polynomial Field Theories and Nonintegrability*, **Physica Scripta** **41**, 289–291, 1990.
9. Duarte L G S, Euler N, Moreira I C and Steeb W-H, *Invertible point transformations, Painlevé analysis and anharmonic oscillators*, **J. Phys. A: Math. Gen.** **23**, 1457–1463, 1990.
10. Steeb W-H and N Euler, *Inviscid Burgers Equation, Painlevé Analysis and a Bäcklund Transformation*, **Z. Naturforschung A**, **45A**, 929–930, 1990.
11. Steeb W-H and Euler N, *Nonlinear Dynamical Systems, First Integrals, Bose Operators and Lie Algebras*, **Found. Phys. Lett.** **3**, 367–374, 1990.

12. Steeb W-H, S.J.M Brits and Euler N, *Painlevé Test and Energy Level Motion*, **Int. J. Theor. Phys.** **29**, 637–642, 1990.
13. Steeb W-H and Euler N, *A Note on Nambu Mechanics*, **Nuovo Cimento B**, 263–272, 1991.
14. Steeb W-H, Euler N and Mulser P, *On a Hierarchy of Nonlinear Dynamical Systems and Painleve Test*, **Found. of Phys.** **4**, 465–469, 1991.
15. Duarte L G S, Moreira N, Euler N and Steeb W-H, *Invertible Point Transformations, Lie Symmetries and the Painlevé Test for the Equation  $\ddot{x} + f_1(t)\dot{x} + f_2(t)x + f_3(t)x^n = 0$* , **Physica Scripta** **43**, 449–451, 1991.
16. Steeb W-H, Euler N and Mulser P, *Semiclassical Jaynes-Cummings Model, Painlevé Test and Exact Solutions*, **J. Math. Phys.** **32**, 3405–3406, 1991.
17. Euler N, Steeb W-H and Mulser P, *Lie Bäcklund Vector Fields and Similarity Solutions*, **J. Phys. Soc. Jpn.** **60**, 1132–1133, 1991.
18. Euler N, Steeb W-H, Duarte L G S and Moreira I C, *Invertible Point Transformation, Painlevé Test and the Second Painlevé Transcendent*, **Int. J. Theor. Phys.** **30**, 1267–1271, 1991.
19. Euler N, Steeb W-H and Mulser P *Symmetries of a Nonlinear Equation in Plasma Physics*, **J. Phys. A: Math. Gen.** **24**, L785–L787, 1991.
20. Steeb W-H, Euler N and Mulser P, *A note on Integrability and Chaos of Reduced Self-dual Yang-Mills Equations and Yang-Mills Equations*, **Nuovo Cimento** **106B**, 1059, 1991.
21. Steeb W-H and Euler N, *Nonlinear Evolution Equation and Painlevé Test*, **Int. J. Mod. Phys.** **7**, 1669–1683, 1992.
22. Steeb W-H and Euler N, *Parametrically Driven Pendulum and Exact Solutions*, **Int. J. of Theor. Phys.** **31**, 1527–1530, 1992.
23. Hereman W, Steeb W-H and Euler N, *Comment on ‘Towards the conservation laws and Lie symmetries for the Khokhlov-Zabolotskaya equation in three dimensions’*, **J. Phys. A: Math. Gen.** **25**, 2417–2418, 1992.

24. Euler N, Shul'ga M W and Steeb W-H, *Approximate symmetries and approximate solutions for a multidimensional Landau-Ginzburg equation*, **J. Phys. A: Math. Gen.** **25**, L1095–L1103, 1992.
25. Wepener V, Euler N, van Vuren J H J, du Preez H H and Köhler A, *The development of an aquatic toxicity index as a tool in the operational management of water quality in the Olifants River (Kruger National Park)* koedoe **35/2**, 1–9, 1992.
26. Steeb W-H, Euler N, and Hereman W, *A note on the Zakharov equation and Lie symmetry vector fields*, **Nuovo Cimento** **107B**, 1211–1213, 1992.
27. Steeb W-H and Euler N, *Nonlinear evolution equations and Painlevé test in Computational and Applied Mathematics II: Differential Equations* **Sel. Rev. Pap.** IMACS 13th World Congr., Dublin/Irel., 227–236, 1992.
28. Euler N, Shul'ga M. W and Steeb W-H, *Lie symmetries and Painlevé test for explicitly space- and time-dependent nonlinear wave equations*, **J. Phys. A: Math. Gen.** **26**, L307–L313, 1993.
29. Euler N and Steeb W-H, *Nonlinear differential equations, Lie symmetries and the Painlevé test*, in Modern Group Analysis, ed. Ibragimov N.H, Torrisi M. and Valenti A, 209–215, **Kluwer Acad. Publ.**, Dordrecht, 1993.
30. Steeb W-H and Euler N, *Externally driven nonlinear oscillator, Painlevé test, first integrals and Lie symmetries*, **Z. Naturforschung A** **48a**, 1993.
31. Euler N and Köhler A and Fushchich W.I, *Q-symmetry generators and exact solutions for nonlinear heat conduction*, **Physica Scripta**, **49**, 518–524, 1994.
32. Euler N and Euler M, *Symmetry properties of the approximations of multidimensional generalized van der Pol equations*, **J. Nonlinear Math. Phys.**, **1**, 41–59, 1994.
33. Euler M, Euler N and Köhler A, *On the construction of approximate solutions for a multidimensional nonlinear heat equation*, **J. Phys. A: Math. Gen.**, **27**, 2083–2092, 1994.

34. Euler N, Euler M and Köhler A, *Conditional and approximate symmetries for a generalized van der Pol equation*, **J. Lie Groups and Their Appl.**, **1**, 79–94, 1994.
35. Euler N, *Painlevé analysis and conditional auto-Bäcklund transformations for a two-dimensional Boltzmann model*, **Dopov./Dokl. Akad. Nauk Ukraini** **8**, 42–48, 1994.
36. Euler M, Euler N, Zachary W.W., Mahmood M.F. and Gill T.L, *Symmetry classification for a coupled nonlinear Schrödinger equation*, **J. Nonlinear Math. Phys.**, **1**, 358–379, 1994.
37. Basarab-Horwath P, Euler N, Euler M and Fushchych W I *Amplitude-phase representation for solutions of nonlinear d'Alembert equations*, **J. Phys. A: Math. Gen.**, **28**, 6193–6201, 1995.
38. Euler N and Euler M, *Madelung representation for complex nonlinear d'Alembert equation in n-dimensional Minkowski space*, **J. Nonlinear Math. Phys.**, **2**, 292–300, 1995.
39. Euler N *Transformation properties of  $\ddot{x} + f_1(t)\dot{x} + f_2(t)x + f_3(t)x^n = 0$* , **J. Nonlinear Math. Phys.**, **4**, 310–338, 1997.
40. Euler M, Euler N and O. Lindblom *Symmetry for a class of explicitly space- and time-dependent (1+1)-dimensional wave equations*, Proceedings of **Natl. Acad. Sci. Ukraine**, Inst. Math., Kiev. The 2nd International Conference on *Symmetry in Nonlinear Mathematical Physics*, Vol. 1 70–78, 1997.
41. Euler N, Lindblom O., Euler M and Persson L-E *The higher dimensional Bateman equation and Painlevé analysis of nonintegrable wave equations*, Proceedings of **Natl. Acad. Sci. Ukraine**, Inst. Math., Kiev. The 2nd International Conference on *Symmetry in Nonlinear Mathematical Physics*, Vol. 1 185–192, 1997.
42. Euler M, Euler N and Lindblom O. *Explicitly space- and time-dependent d'Alembert equations with symmetries*, **Int. J. Mod. Phys. A** **14**, 4189 – 4200, 1999.
43. Euler N and Lindblom O, *n-Dimensional Bateman equation and the Painlevé analysis of wave equations*, **Int. J. Diff. Eqs. and Appl.**, **1**, 205–223, 2000

44. Euler N, Gandarias M L, Euler M and Lindblom O, *Auto-hodograph transformations for a hierarchy of nonlinear evolution equations*, **J. Math. Anal. Appl.** **257**, 21-28, 2001.
45. Euler M and Euler N *n-Dimensional real wave equations and the d'Alembert-Hamilton system*, **Nonlinear Anal. Ser. A: Theory Methods**, **47** (8), 5125-5133, 2001.
46. Euler N and Lindblom O, *On discrete velocity Boltzmann equations and the Painleve analysis*, **Nonlinear Anal. Ser. A: Theory Methods**, **47** (2), 1407-1412, 2001.
47. Euler N and Euler M, *A tree of linearisable second-order evolution equations by generalised hodograph transformations*, **J. Nonlinear Math. Phys.** **8**, 342-362, 2001.
48. Lindblom O and Euler N, *Solutions of Discrete-Velocity Boltzmann Equations via Bateman and Riccati Equations*, **Teoret. Mat. Fiz.** **131**, 595-608, 2002.
49. Euler N, Wolf T, Leach P G L and Euler M, *Linearisable Third Order Ordinary Differential Equations and Generalised Sundman Transformations: The Case  $X''' = 0$* , **Acta Appl. Math.** **76**, 89-115, 2003.
50. Euler M, Euler N, Petersson N, *Linearisable Hierarchies of Evolution Equations in (1+1) Dimensions*, **Stud. Appl. Math.**, **111**, 315-337, 2003.
51. Euler N and Leach P G L, *First Integrals and Reduction of a Class of Nonlinear Higher Order Ordinary Differential Equations*, **J. Math. Anal. Appl.**, **287** (2), 473-486, 2003.
52. Petersson N, Euler N, and Euler M, *Recursion Operators for a Class of Integrable Third-Order Evolution Equations*, **Stud. Appl. Math.**, **112**, 201-225, 2004.
53. Euler N and Euler M, *Sundman Symmetries of Nonlinear Second-Order and Third-Order Ordinary Differential Equations*, **J. Nonlinear Math. Phys.**, **11**, 399-421, 2004.
54. Euler M, Euler N and Leach PGL, *The Riccati and Ermakov-Pinney Hierarchies*, **J. Nonlinear Math. Phys.**, **14**, 290-302, 2007

55. Euler M, Euler N, A Strömberg and E Åström, *Transformation between a Generalised Emden-Fowler Equation and the First Painlevé Transcendent*, **Math. Meth. Appl. Sci.** **30**, 2121–2124, 2007
56. Euler M and Euler N, *Second-order recursion operators of third-order evolution equations with fourth-order integrating factors*, **J. Nonlinear Math. Phys.**, **14**, 313-315, 2007
57. Calogero F, Euler M and Euler N, *New evolution PDEs with many isochronous solutions*, **J. Math. Anal. and Appl.**, **353**, 481-488, 2009
58. Euler N and Leach PGL, *Aspects of proper differential sequences of ordinary differential equations*. Accepted 16 September 2008 in **Theor. and Math. Phys.**, **159**, 474-487, 2009.
59. Euler M, Euler N and Lundberg S, *On reciprocal-Bäcklund transformations of autonomous evolution equations*. **Theor. and Math. Phys.**, **159**, 770-778, 2009.
60. Euler N and Euler M, *On nonlocal symmetries, nonlocal conservation laws and nonlocal transformations of evolution equations: Two linearisable hierarchies*, **J. Nonlinear Math. Phys.**, **16**, 489-504, 2009.
61. Leach PGL and Euler N, *A novel Riccati sequence*, **J. Nonlinear Math. Phys.**, **16** Suppl., 157-164, 2009.
62. Euler N and Euler M, *Multipotentialisation and iterating-solution formulae: The Krichever-Novikov equation*, **J. Nonlinear Math. Phys.**, **16** Suppl., 93-106, 2009.
63. Leach PGL, Warne R R, Caister N, Naicker V and Euler N, *Symmetries, Integrals and Solutions of Ordinary Differential Equations of Maximal Symmetry*, **Proc. Indian Acad. Sci (Math. Sci.)** **120**, 1, 113-130, 2010.
64. Euler M, Euler N and Leach PGL, *Properties of the Calogero-Degasperis-Ibragimov-Shabat differential sequence*, **Lobachevskii Journal of Mathematics**, **32**, 1, 61-69, 2011.
65. Euler N and Euler M, *The converse problem for the multipotentialisation of evolution equations and systems*, **J. Nonlinear Math. Phys.** **18** Suppl. 1, 77-105, 2011.

66. Euler M and Euler N, *A class of semilinear fifth-order evolution equations: Recursion operators and multipotentialisations*, **J. Nonlinear Math. Phys.**, **18** Suppl. 1, 61-75, 2011.
67. Euler M and Euler N, Integrating factors and conservation laws for some Camassa-Holm type equations, *Commun. Pure Appl. Anal.*, **11**, 1421-1430, 2012.
68. Euler M, Euler N and Wolf T, The two-component Camassa-Holm equations CH(2,1) and CH(2,2): First-order integrating factors and conservation laws, **J. Nonlinear Math. Phys.**, **19** Suppl. 1, 1240002 (10 pages), 2012.
69. Euler M and Euler N, An alternate view on symmetries of second-order linearisable ordinary differential equations, **Lobachevskii Journal of Mathematics**, **33**, 191-194, 2012.
70. Euler N, Linear operators and the general solution of elementary linear ordinary differential equations without Ansätze, **Community of Ordinary Differential Equations Educators**, CJ12-1802 , [Visit C-ODE-E ] May 2012.
71. Euler M and Euler N, Invariance of the Kaup-Kupershmidt equation and triangular auto-Bäcklund transformations, **J. Nonlinear Math. Phys.**, **19**, 1220001-1-7, 2012.
72. Euler M, Euler N and Nucci M C, On nonlocal symmetries generated by recursion operators: second-order evolution equations, **Discrete and Continuous Dynamical Systems: Series A**, **37** nr. 8, 4239-4247, 2017.
73. Euler M, Euler N and Reyes E G, Multipotentialisation and nonlocal symmetries: Kupershmidt, Kaup-Kupershmidt and Sawada-Kotera equations, **J. Nonlinear Math. Phys.**, **24** nr. 3, 303-314, 2017.
74. Euler N and Reyes E G, *Local and Nonlocal Symmetries in Mathematical Physics*, Preface, **J. Nonlinear Math. Phys.**, **24** Supplement 1, 1-2, 2017.
75. Euler M and Euler N, Nonlocal invariance of the multipotentialisations of the Kupershmidt equation and its higher-order hierarchies: 317-351, in *Nonlinear Systems and Their Remarkable Mathematical Structures* edited by N Euler, **CRC Press** (Boca Raton, USA), 2018.

76. Euler M and Euler N, On Möbius-invariant and symmetry-integrable evolution equations and the Schwarzian derivative, **Studies in Applied Mathematics**, 2019; 1 – 18, <https://doi.org/10.1111/sapm.12268>

### **Published Books:**

### **Research-Level Books:**

1. Steeb W-H and Euler N, *Nonlinear Field Equations and Painlevé Test*, **World Scientific Publishing**, Singapore/New Jersey/Hong Kong, 1988.
2. Euler N and Steeb W-H, *Continuous Symmetries, Lie Algebras and Differential Equations*, **B.I Wissenschaftsverlag**, Mannheim/Wien/Zürich, 1992.
3. N Euler (ed), *Nonlinear Systems and Their Remarkable Mathematical Structures: Volume 1*, **CRC Press** (Boca Raton, USA), 582 pages, 2018.

### **Coursebooks for Students:**

1. Euler N, *A First Course in Ordinary Differential Equations*, E-book at Bookboon.com: London, UK, ISBN: 978-87-403-1045-0, 1st edition (232 pages). July 2015.
2. Euler M and Euler N, *Problems, Theory and Solutions in Linear Algebra, Part 1: Euclidean Space*, E-book at Bookboon.com: London, UK, ISBN: 978-87-403-1134-1, 1st edition (169 pages). October 2015; 2nd edition (235 pages) June 2016.
3. Euler N (translated by Cristina Sardon Munoz) *Ecuaciones diferenciales ordinarias: Introduccion a las ecuaciones lineales*, E-book at Bookboon.com: London, UK, ISBN: 978-87-403-1213-3, 1st edition (233 pages). January 2016.
4. Euler N (translated by Ann-Kathrin Kolb) *Gewöhnliche Differentialgleichungen. Eine Einführung*, E-book at Bookboon.com: London, UK, ISBN: 978-87-403-1290-4, 1st edition (237 pages). April 2016.



5. Euler M and Euler N (translated by Cristina Sardon Munoz) *Problemas, Teoria y Soluciones en Algebra Lineal: Parte 1 Espacio Euclideo*, E-book at Bookboon.com: London, UK, ISBN: 978-87-403-1415-1, 1st edition (232 pages). August 2016.
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