

Christian Ringhofer

**PUBLICATIONS**  
**C. Ringhofer, 02-20-2010**

**BOOKS AND REVIEW ARTICLES:**

1. P. Markowich, C. Schmeiser, C. Ringhofer: 'Mathematical Models for Semiconductor Devices', Springer Verlag (1990).
2. A. Anile, W. Allegretto, C. Ringhofer: Mathematical Problems in Semiconductor Physics, Springer Lecture Notes in Mathematics (2003).
3. D. Ferry, C. Ringhofer: 'Wigner Function Modeling of Resonant Tunneling Devices' chapter in 'Quantum Transport in Semiconductors', C. Jacoboni ed., Plenum Press (1992) .
4. C. Ringhofer: 'Computational Methods for Semiclassical and Quantum Transport in Semiconductor Devices', Review Article, 'Acta Numerica' vol. 3, pp.485-521 (1997).
5. C. Ringhofer, C. Gardner, D. Vasileska: Effective Potentials and Quantum Fluid Models: A Thermodynamic Approach, Inter. J. on High Speed Electronics and Systems 13, pp. 771-803, 2003.
6. C. Ringhofer: Traffic flow models and service rules for complex production systems, to appear in 'Decision Policies for Production Networks', K. Kempf, D. Armbruster ed., Springer 2011.
7. S. Goettlich, M. Herty, C. Ringhofer: Optimal order and distribution strategies in production networks. to appear in 'Decision Policies for Production Networks', K. Kempf, D. Armbruster ed., Springer 2010.

**ARTICLES:**

**Quantum Kinetic Equations:**

8. P. Markowich, C. Ringhofer: 'An Analysis of the Quantum Liouville Equation' Zeitschrift fuer Angewandte Mathematik und Mechanik 69, pp121-127 (1989).
9. D. Ferry, N. Kluksdahl, C. Ringhofer: 'Intrinsic Bistability in the Resonant Tunneling Diode' Superlattices and Microstructures 5, pp 397-401 (1989) .

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14. C. Ringhofer: 'A Spectral - Collocation Technique for the Solution of the Wigner - Poisson Problem', SIAM J. Num. Anal. 29, pp 679-701 (1992).
15. D. Ferry, A. Kriman, C. Ringhofer: 'Self Consistent Study of the Resonant Tunneling Diode' Phys. Rev. B vol. 39, pp 7720 - 7735 (1989) .
16. C. Ringhofer: 'Numerical Methods for Quantum Transport Simulations Using the Wigner Function Approach' , in 'Semiconductor Transport and Device Simulation' pp. 207-215, K. Hess ed. (1990).
17. C. Ringhofer: 'An Asymptotic Analysis for the Quantum Boltzmann Equation in the Classical Limit' in 'Asymptotic and Numerical Methods for Partial Differential Equations', pp. 24-39, H. Kaper ed. (1991).
18. C. Ringhofer: 'Numerical Simulation of Quantum Transport in Ultra Submicron Devices' in, 'Numerical Analysis of Semiconductor Processes and Devices' pp.98-102, J.J.H. Miller ed. (1991).
19. A. Arnold, C. Ringhofer: 'Operator Splitting Methods Applied to Spectral Discretizations of Quantum Transport Equations', SIAM J. Num. Anal. 32, pp.1876-1894 (1995).
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21. C. Ringhofer: 'On the Convergence of Spectral Collocation Methods for the Wigner Poisson Problem', Math. Meth. and Models in Appl. Sci. 2, pp91-111, (1992).
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### **Semiclassical Kinetic Equations**

34. C. Ringhofer: 'A Numerical Method for the Spatially Homogeneous Boltzmann Transport Equation using a Shifted Spherical Harmonics Expansion', *Proceedings of 'Int. Workshop on Computational Electronics'*, pp. 89-111, S. Goodnick ed. (1994).

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37. C. Ringhofer, C. Schmeiser, A. Zwirchmayer: 'Moment methods for the semiconductor Boltzmann equation in bounded position domains' *SIAM J. Num. Anal.*39, pp. 1078 - 1095 (2001).
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**Classical Drift-Diffusion Systems, Energy Transport Models, Hydrodynamics etc.**

44. C. Ringhofer, S. Selberherr: 'A Singular Perturbation Approach for the Analysis of the Fundamental Semiconductor Device Equations' *IEEE Trans. Electr. Dev.* Vol. 30, Nr. 9, pp. 1165-1181 (1983).
45. C. Ringhofer: 'Numerical Methods for VLSI Simulation' *Proceedings, First ARO Conference on Applied Mathematics and Scientific Computation, Washington D.C.* , pp. 134-142, ARO (1983).

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## Quantum Hydrodynamics

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### **Open Quantum Systems:**

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### **CVD and Homogenization**

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**Other Topics:**

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