

**List of Publications:** Peter Schuster, November 6, 2004

**Articles:**

- [1] P. Schuster, O. E. Polansky, and F. Wessely. [Zur Kenntnis zyklischer Acylale](#), 6. Mitt. *Mh. Chem.*, 95:53–88, 1964.  
Citations: 98.
- [2] P. Schuster and O. E. Polansky. [Theoretische Abschätzung der pK-Werte einiger organischer Lewissäuren](#). *Mh. Chem.*, 99:1234–1245, 1968.  
Citations: 20.
- [3] P. Schuster, D. Vedrilla, and O. E. Polansky. Elektronenstruktur und Spektren von Phenylcycloheptatrienyl-Kationen. *Mh. Chem.*, 100:1–27, 1969. Citations: 12.
- [4] I. Schuster and P. Schuster. Protonenresonanzspektren und Konformation cyclischer Acylale. *Tetrahedron*, 25:199–208, 1968.
- [5] P. Schuster and T. Funck. LCAO-MO-Description of the different association types of formic acid. (LCAO-MO-Studies on molecular structure I.). *Chem. Phys. Lett.*, 2:587–588, 1968.
- [6] H. Kisch, O. E. Polansky, and P. Schuster. [Thermisch instabile  \$\Delta^1\$ -Pyrazoline durch Reaktion von Diazomethan mit Olefinen bei tiefen Temperaturen](#). *Tetrahedron Lett.*, 10:805–808, 1969.  
Citations: 21.
- [7] P. Schuster. [LCAO-MO-Studies on Hydrogen Bonding: The Interaction between Carbonyl and Hydroxyl Groups \(LCAO-MO-Studies on Molecular Structure II.\)](#). *Int. J. Quant. Chem.*, 3:851–871, 1969.  
Citations: 101.
- [8] P. Schuster. [LCAO-MO-Calculations on the Enol Form of Acetylacetone and its Metal Complexes \(LCAO-MO-Studies on Molecular Structures III.\)](#). *Chem. Phys. Lett.*, 3:433–436, 1969.  
Citations: 98.

- [9] P. Schuster. LCAO-MO-Beschreibung intramolekularer Wasserstoffbrücken (LCAO-MO-Untersuchungen von Molekülstrukturen, 4. Mitt.). *Mh.Chem.*, 100:2084–2095, 1968. Citations:14.
- [10] M.-L. Ahrens, G. Maass, P. Schuster, and H. Winkler. The kinetic behaviour of vitamin B6 compounds: Hydration and proton transfer. *FEBS Lett.*, 5:327–330, 1969.
- [11] P. Schuster and H. Winkler. The nucleophilic attack of thiols on pyridoxal-5-phosphate. *Tetrahedron*, 26:2249–2256, 1970.
- [12] M.-L. Ahrens, G. Maass, P. Schuster, and H. Winkler. Kinetic Study on the Hydration Mechanism of Vitamin B6 and Related Compounds. *J.Am.Chem.Soc.*, 92:6134–3139, 1970. Citations: 38.
- [13] P. Schuster. LCAO-MO-SCF Calculations on the Stability and Stereochemistry of Hydrogen Bonds (LCAO-MO Calculation on Molecular Structure VI). *Theor.Chim.Acta*, 19:212–224, 1970. Citations: 98.
- [14] W. Jakubetz and P. Schuster. Hydrogen Bonding and Charge Transfer in  $\pi$ -Complexes of Electrophilic Aromatic Substitution (LCAO-MO Calculations on Chemical Reaction Pathways I). *Tetrahedron*, 27:101–112, 1971. Citations: 32.
- [15] W. Jakubetz and P. Schuster. Berechnung von Zwischenstufen und Übergangszustand der elektrophilen aromatischen Substitution. *Angew.Chemie*, 83:499–500, 1971. English Version: *Angew.Chemie, Internatl.Ed.* 10:497-498, 1971 Citations: 14.
- [16] P. Schuster and H.-W. Preuss. Ab Initio Calculations on the Hydration of Monoatomic Cations (LCAO-MO Studies on Molecular Structure VII). *Chem.Phys.Lett.*, 11:35–37, 1971. Citations: 42.
- [17] P. Russegger, H. Lischka, and P. Schuster. Ab Initio Calculations of Molecules with Efficient GTO Basis Sets. *Chem.Phys.Lett.*,

12:392–395, 1971.

Citations: 21.

- [18] P. Schuster. Vom Makromolekül zur primitiven Zelle - Die Entstehung biologischer Funktion. *Chemie i.u.Zeit*, 6:1–16, 1972. Also published in: Walter Hoppe, Wolfgang Lohmann, Hubert Markl and Hubert Ziegler, Eds. *Biophysik - Ein Lehrbuch*, pages 688-705. Springer-Verlag. Berlin 1977.
- [19] A. Karpfen, J. Ladik, P. Russegger, and P. Schuster. Hydrogen bonding in long chains of hydrogen fluoride and long chains and large clusters of water molecules (LCAO-MO Calculations on molecular structure X). *Theor.Chim.Acta*, 34:115–127, 1974.  
Citations: 42.
- [20] W. Meyer, W. Jakubetz, and P. Schuster. Correlation Effects on Energy Curves for Proton Transfer - The Cation  $(\text{H}_5\text{O}_2)^+$ . *Chem.Phys.Lett.*, 21:97–102, 1973.  
Citations: 66.
- [21] P. Schuster, W. Jakubetz, G. Beier, W. Meyer, and B. M. Rode. Potential Curves for Proton Transfer Along Hydrogen Bonds. In E. D. Bergmann and B. Pullmann, editors, *Chemical and Biochemical Reactivity*, pages 257–282. Academic Press, Jerusalem, 1974.  
Citations: 25.
- [22] A. Pullman and P. Schuster. Model studies on the binding of metal cations to macrocyclic ligands. I. the interaction of  $\text{Li}^+$  with carbonyl groups. *Chem.Phys.Lett.*, 24:472–477, 1974.
- [23] B. M. Rode, M. Breuss, and P. Schuster. Ionic solvation in formic acid. A comparison of non-empirical and semi-empirical results for the cation/solvent complexes. *Chem.Phys.Lett.*, 32:34–37, 1975.
- [24] P. Schuster, W. Jakubetz, and W. Marius. Molecular Models for the Solvation of Small Ions and Polar Molecules. *Topics in Current Chemistry*, 60:1–107, 1975.  
Citations: 124.
- [25] P. Schuster, W. Marius, A. Pullmann, and H. Berthod. The Interaction of Alkali Metal Cations with Oxygen-Containing Ligands.

*Theoret. Chim. Acta*, 40:323–341, 1975.

Citations: 31.

- [26] N. Tyutyulkov, S. Stoyanov, M. Taseva, and P. Schuster. Quantum chemical (SCF-CI) investigations on electronic structures and spectra of photocolored open chain merocyanine forms of indoline spiropyrans. *J.Signal AM*, 3:435–442, 1975. Citations: 5.
- [27] P. Schuster. [Energy Surfaces in Hydrogen Bonded Systems](#). In P. Schuster, G. Zundel, and C. Sandorfy, editors, *The Hydrogen Bond - Recent Developments in Theory and Experiment*, volume I, pages 25–163. North Holland Publ. Co., Amsterdam, 1976. Citations: 72.
- [28] P. Schuster, K. Tortschanoff, and H. Winkler. Protonenübertragungsreaktionen zweibasischer Säuren in wäßriger Lösung: 3-Hydroxypyridin. *Z.f.Naturforschung*, 31:219–224, 1976.
- [29] R. Bednar, U. Herzig, I. Schuster, P. Schuster, and P. Wolschann. Proton magnetic resonance spectra and conformation of some trisubstituted cyclopropane compounds. *Org.Mag.Res.*, 8:301–307, 1976.
- [30] A. Karpfen and P. Schuster. [Ab Initio Studies on Infinite Linear Hydrogen Fluoride Chains](#). *Chem.Phys.Lett.*, 44:459–464, 1976. Citations: 56.
- [31] P. Schuster, P. Wolschann, and K. Tortschanoff. Dynamics of proton transfer in solution. In I. Pecht and R. Rigler, editors, *Molecular Biology, Biochemistry and Biophysics*, volume 24, pages 107–190. Springer-Verlag, Berlin Heidelberg, 1977. Citations: 12.
- [32] P. Schuster. [The Fine Structure of the Hydrogen Bond](#). In B. Pullman, editor, *Intermolecular Interactions: From Diatomics to Biopolymers*, volume II, pages 363–432. J. Wiley, New York, 1978. Citations: 39.
- [33] P. Schuster, K. Sigmund, and R. Wolff. [Dynamical Systems under Constant Organization I: Topological Analysis of a Family on Non-Linear Differential Equations - A Model for Catalytic](#)

Hypercycles. *Bull.Math.Biol.*, 40:743–769, 1978.  
Citations: 35.

- [34] A. Karpfen, P. Schuster, and H. Berner. Structures and tautomerization energies of pyrrole and some pyrrole derivatives. *J.Org.Chem.*, 44:374–379, 1979. Citations: 13.
- [35] M. Neumann, F. J. Vesely, O. Steinhauser, and P. Schuster. Solvation of large dipoles I. A molecular dynamics study. *Mol. Phys.*, 35:841–855, 1978. Citations: 12.
- [36] M. Eigen and P. Schuster. **The Hypercycle. A Principle of Natural Self-Organization. Part A: Emergence of the Hypercycle.** *Naturwissenschaften*, 64:541–565, 1977.  
Citations: 416.
- [37] M. Eigen and P. Schuster. **The Hypercycle. A Principle of Natural Self-Organization. Part B: The Abstract Hypercycle.** *Naturwissenschaften*, 65:7–41, 1978.  
Citations: 201.
- [38] M. Eigen and P. Schuster. **The Hypercycle. A Principle of Natural Self-Organization. Part C: The Realistic Hypercycle.** *Naturwissenschaften*, 65:341–369, 1978.  
Citations: 322.
- [39] A. Karpfen, P. Schuster, J. I. Petkov, and H. Lischka. **Ab initio Study of Structure and Vibrational Spectra of  $\text{SN}^+$ ,  $\text{SN}$ , and  $\text{S}_2\text{N}_2$ .** *J.Chem.Phys.*, 68:3884–3890, 1978.  
Citations: 31.
- [40] J. Hofbauer, P. Schuster, K. Sigmund, and R. Wolff. **Dynamical Systems under Constant Organization II: Homogeneous Growth Functions of Degree  $p = 2$ .** *SIAM J.Appl.Math.*, 38:282–304, 1980.  
Citations: 31.
- [41] P. Schuster, K. Sigmund, and R. Wolff. **Dynamical Systems under Constant Organization III: Cooperative and Competitive Behaviour of Hypercycles.** *J.Diff.Equ*, 32:357–368, 1979.  
Citations: 65.

- [42] P. Schuster, K. Sigmund, and R. Wolff. [Mass Action Kinetics of Selfreplication in Flow Reactors.](#) *J.Math.Anal.Appl.*, 78:88–112, 1980. Citations: 23.
- [43] P. Schuster, K. Sigmund, and R. Wolff. [On  \$\omega\$ -Limits for Competition Between Three Species.](#) *SIAM J.Appl.Math.*, 37:49–54, 1979. Citations: 46.
- [44] J. Hofbauer, P. Schuster, and K. Sigmund. [A Note on Evolutionary Stable Strategies and Game Dynamics.](#) *J.Theor.Biol.*, 81:609–612, 1979. Citations: 52.
- [45] M. Neumann, F. J. Vesely, O. Steinhauser, and P. Schuster. Solvation of large dipoles. A molecular dynamics study II. *Mol.Phys.*, 37:1725–1743, 1979. Citations: 7.
- [46] P. Schuster, A. Karpfen, and A. Beyer. [Cooperative Phenomena in Molecular Systems.](#) In H. Rartajczak and W. J. Orville-Thomas, editors, *Molecular Interactions*, pages 117–149. J. Wiley & Sons, London, 1980. Citations: 24.
- [47] A. Beyer, A. Karpfen, and P. Schuster. [On the Origin of Three-Body Potentials in Clusters of Polar Molecules and Ions.](#) *Chem.Phys.Lett.*, 67:369–373, 1979. Citations: 27.
- [48] I. Lukovits, A. Karpfen, H. Lischka, and P. Schuster. [Ab initio LCMO Studies on the Hydration of Formate Ion.](#) *Chem.Phys.Lett.*, 63:151–154, 1979. Citations: 22.
- [49] B. Schreiber, H. Martinek, P. Wolschann, and P. Schuster. [Kinetic Studies on the Nucleophilic Addition to Double Bonds. I. Addition of Amines to Electrophilic Carbon-Carbon Double Bonds.](#) *J.Am.Chem.Soc.*, 101:4708–4713, 1979. Citations: 33.

- [50] M. Eigen, P. Schuster, K. Sigmund, and R. Wolff. Elementary step dynamics of catalytic hypercycles. *BioSystems*, 13:1–22, 1980. Citations: 16.
- [51] P. Schuster and K. Sigmund. **Coyness, Philandering and Stable Strategies.** *Animal Behaviour*, 29:186–192, 1981. Citations: 30.
- [52] B. Schreiber, H. Martinek, M. Hoffmann-Ostenhof, P. Wolschann, and P. Schuster. An analytical approach to the study of coupled chemical equilibria. *Mh.Chem.*, 11:235–248, 1980.
- [53] J. Hofbauer, P. Schuster, and K. Sigmund. **Competition and Cooperation in Catalytic Selfreplication.** *J.Math.Biol.*, 11:155–168, 1981. Citations: 25.
- [54] P. Schuster. Prebiotic evolution. In H. Gutfreund, editor, *Biochemical Evolution.*, pages 15–87. Cambridge Univ.Press, Cambridge, U.K., 1981. Citations: 16.
- [55] M. Eigen, W. C. Gardiner, and P. Schuster. Hypercycles and compartments. Compartments assist - but do not replace - hypercyclic organization of early genetic information. *J.Theor.Biol.*, 85:407–411, 1980. Citations: 13.
- [56] P. Schuster, K. Sigmund, J. Hofbauer, and R. Wolff. **Selfregulation of Behaviour in Animal Societies. I. Symmetric Contests.** *Biol.Cybern.*, 40:1–8, 1981. Citations: 36.
- [57] P. Schuster, K. Sigmund, J. Hofbauer, and R. Wolff. Selfregulation of behaviour in animal societies. II. Games between two populations without selfinteraction. *Biol.Cybern.*, 40:9–15, 1981. Citations: 2.
- [58] P. Schuster, K. Sigmund, J. Hofbauer, R. Wolff, R. Gottlieb, and P. Merz. Selfregulation of behaviour in animal societies. III. Games between two populations with selfinteraction. *Biol.Cybern.*, 40:17–25, 1981. Citations: 15.

- [59] M. Eigen, W. Gardiner, P. Schuster, and R. Winkler-Oswatitsch. [The Origin of Genetic Information](#). *Sci.Am.*, 244:88–118, 1981. German Version: Spektrum 6:37-56, 1981. Citations: 195.
- [60] A. Karpfen, A. Beyer, and P. Schuster. [Hydrogen Bonding in Clusters and Molecular Crystals](#). *Int.J.Quant.Chem.*, 19:1113–1119, 1981. Citations: 66.
- [61] P. Schuster. [Zwischenmolekulare Kräfte - Ein Beispiel für das Zusammenwirken von Theorie und Experiment](#). *Angew.Chem.*, 93:532–553, 1981. English Version: *Angew.Chem. Internatl.Ed.* 20:546-568, 1981. Citations: 48.
- [62] P. Schuster and K. Sigmund. A note on the evolution of sexual dimorphism. *J.Theor.Biol.*, 94:107–110, 1982. Citations: 6.
- [63] J. Hofbauer, P. Schuster, and K. Sigmund. Game dynamics in Mendelian populations. *Biol.Cybern.*, 43:51–57, 1982. Citations: 14.
- [64] B. Gassner and P. Schuster. Model studies on RNA-replication I. The quasiequilibrium assumption and the analysis of a simplified mechanism. *Mh.Chem.*, 113:237–263, 1982. Citations: 4.
- [65] M. Eigen and P. Schuster. [Stages of Emerging Life - Five Principles of Early Organization](#). *J.Mol.Evol.*, 19:47–61, 1982. Citations: 47.
- [66] N. Tyutyulkov, P. Schuster, and O. E. Polansky. [Band Structure of Nonclassical Polymers](#). *Theor.Chim.Acta*, 63:291–304, 1983. Citations: 70.
- [67] J. Swetina and P. Schuster. [Self-Replication with Errors - A Model for Polynucleotide Replication](#). *Biophys.Chem.*, 16:329–345, 1982. Citations: 107.
- [68] E. M. Bomze, P. Schuster, and K. Sigmund. The role of Medelian genetics in strategic models on animal behaviour. *J.Theor.Biol.*, 101:19–38, 1983.



- [69] P. Schuster and K. Sigmund. [Replicator Dynamics](#). *J.Theor.Biol.*, 100:533–538, 1983.  
Citations: 80.
- [70] A. Beyer, A. Karpfen, and P. Schuster. [Energy Surfaces of Hydrogen-Bonded Complexes in the Vapour Phase](#). *Topics in Current Chemistry*, 120:1–40, 1984.  
Citations: 65.
- [71] P. E. Phillipson and P. Schuster. Analytical solution of coupled nonlinear rate equations. II. Kinetics of positive catalytic feedback loops. *J.Chem.Phys.*, 79:3807–3818, 1983. Citations: 13.
- [72] P. E. Phillipson, P. Schuster, and F. Kemler. Dynamical machinery of a biochemical clock. *Bull.Math.Biol.*, 46:339–355, 1984.
- [73] A. Karpfen, A. Beyer, and P. Schuster. [Ab initio Studies on Clusters of Polar Molecules. Stability of Cyclic versus Open Chain Trimers of Hydrogen Fluoride](#). *Chem.Phys.Lett.*, 102:289–291, 1983.  
Citations: 41.
- [74] P. Schuster. Evolution between chemistry and biology. *Origins of Life*, 14:3–14, 1984. Citations: 4.
- [75] N. Tyutyulkov, O. E. Polansky, P. Schuster, S. Karabunarliev, and C. I. Ivanov. [Structure and Properties of Non-Classical Polymers II. Band Structure and Spin Densities](#). *Theor.Chim.Acta*, 67:211–228, 1985.  
Citations: 80.
- [76] P. Schuster and K. Sigmund. [Dynamics of Evolutionary Optimization](#). *Ber. Bunsenges. Phys. Chem.*, 89:668–682, 1985.  
Citations: 30.
- [77] L. Demetrius, P. Schuster, and K. Sigmund. [Polynucleotide Evolution and Branching Processes](#). *Bull.Math.Biol.*, 47:239–262, 1985.  
Citations: 38.
- [78] A. Karpfen and P. Schuster. [Ab initio Studies on Hydrogen Bonded Chains. V. The Structure of Infinite Chains of Methanol and Water](#)

- [Molecules](#). *Can. J. Chem.*, 63:809–815, 1985.  
[Citations: 33](#).
- [79] P. E. Phillipson, P. Schuster, and R. G. Johnston. An analytical study of the May-Leonard equations. *SIAM J. Appl. Math.*, 45:541–554, 1985. [Citations: 5](#).
- [80] A. Karpfen and P. Schuster. Ion-molecule interactions - A quantum chemical approach to primary solvation. In R. R. Dogonadze, E. Kálmán, A. A. Kornyshev, and J. Ulstrup, editors, *The Chemical Physics of Solvation. Part A: Theory of Solvation*, pages 265–312. Elsevier, Amsterdam, 1985. [Citations: 5](#).
- [81] P. Schuster. [The Physical Basis of Molecular Evolution](#). *Chemica Scripta*, 26B:27–41, 1986.  
[Citations: 21](#).
- [82] P. Schuster. Dynamics of molecular evolution. *Physica*, 22D:100–119, 1986. [Citations: 19](#).
- [83] P. Schuster. Hydrogen bonds. In R. A. Meyer, editor, *Encyclopedia of Physical Science and Technology*, volume 6, pages 519–554. Academic Press, New York, 1987. [Citations: 3](#).
- [84] W. Fontana and P. Schuster. [A Computer Model of Evolutionary Optimization](#). *Biophys. Chem.*, 26:123–147, 1987.  
[Citations: 81](#).
- [85] Y. Bouteiller, C. Mijoule, A. Karpfen, H. Lischka, and P. Schuster. Theoretical vibrational investigation of hydrogen-bonded complexes: Application to  $\text{ClH}\cdot\text{NH}_3$ ,  $\text{ClH}\cdot\text{NH}_2\text{CH}_3$ ,  $\text{BrH}\cdot\text{NH}_3$ . *J. Phys. Chem.*, 91:4464–4466, 1987. [Citations: 19](#).
- [86] P. Schuster and J. Swetina. [Stationary Mutant Distribution and Evolutionary Optimization](#). *Bull. Math. Biol.*, 50:635–660, 1988.  
[Citations: 54](#).
- [87] M. Eigen, J. McCaskill, and P. Schuster. [Molecular Quasispecies](#). *J. Phys. Chem.*, 92:6881–6891, 1988.  
[Citations: 234](#).

- [88] M. Eigen, J. McCaskill, and P. Schuster. [The Molecular Quasispecies](#). *Adv.Chem.Phys.*, 75:149–263, 1989.  
Citations: 145.
- [89] J. Reiter, A. Beyer, M. Potschka, P. Schuster, H. Winkler, H. Ebeling, and E. U. Franck. Proton-transfer reactions of dibasic acids in aqueous solution: 3-hydroxypyridine and anthranilic acid. *J.Phys.Chem.*, 93:442–451, 1989.
- [90] M. Nowak and P. Schuster. [Error Thresholds of Replication in Finite Populations. Mutation Frequencies and the Onset of Muller’s Ratchet](#). *J.Theor.Biol.*, 137:375–395, 1989.  
Citations: 118.
- [91] W. Fontana, W. Schnabl, and P. Schuster. [Physical Aspects of Evolutionary Optimization and Adaptation](#). *Phys.Rev.A*, 40:3301–3321, 1989.  
Citations: 59.
- [92] A. Beyer and P. Schuster. Internal dynamics of flexible molecules: Cyclohexane. *Mh.Chem.*, 121:339–349, 1990. Citations: 4.
- [93] P. F. Stadler and P. Schuster. Dynamics of small autocatalytic reaction networks - I. Bifurcations, permanence and exclusion. *Bull.Math.Biol.*, 52:485–508, 1990. Citations: 17.
- [94] W. Schnabl, P. F. Stadler, C. Forst, and P. Schuster. [Full Characterization of a Strange Attractor. Chaotic Dynamics on Low-Dimensional Replicator Systems](#). *Physica D*, 48:65–90, 1991.  
Citations: 35.
- [95] P. F. Stadler and P. Schuster. [Mutation in Autocatalytic Reaction Networks. An Analysis Based on Perturbation Theory](#). *J.Math.Biol.*, 30:597–632, 1992. Also published as: Preprint No. 90-022, Santa Fe Institute, Santa Fe, NM, 1990.  
Citations: 24.
- [96] P. Schuster. Complex optimization in an artificial RNA world. In C. G. Langton, C. Taylor, J. D. Farmer, and S. Rasmussen, editors, *Artificial Life. II. SFI Studies in the Sciences of Complexity*,

volume X, pages 277–291. Addison-Wesley, Redwood City, CA, 1992.  
Citations: 2.

- [97] W. Fontana, T. Griesmacher, W. Schnabl, and P. Schuster. [Statistics of Landscapes Based on Free Energies, Replication and Degradation Rate Constants of RNA Secondary Structures](#). *Mh.Chemie*, 122:795–819, 1991. Also published as: Preprint No. LA-UR-91-1499, Los Alamos National Laboratory, Los Alamos, NM 1991.  
Citations: 38.
- [98] P. E. Phillipson and P. Schuster. Map dynamics of autocatalytic networks and the replicator equations. *J.Math.Biol.*, 32:545–562, 1994. Citations: 5.
- [99] P. E. Phillipson and P. Schuster. Map dynamics of reproduction. *Int.J. of Bifurcation and Chaos*, 5:381–396, 1995. Citations: 1.
- [100] W. Fontana, D. A. M. Konings, P. F. Stadler, and P. Schuster. [Statistics of RNA secondary structures](#). *Biopolymers*, 33:1389–1404, 1993. Also published as: Preprint No. 92-02-008, Santa Fe Institute, Santa Fe, NM, 1992.  
Citations: 94.
- [101] H. Schreiber, O. Steinhauser, and P. Schuster. Parallel molecular dynamics of biomolecules. *Parallel Computing*, 18:557–573, 1992. Citations: 12.
- [102] S. Bonhoeffer, J. S. McCaskill, P. F. Stadler, and P. Schuster. [RNA Multi-Structure Landscapes. A Study Based on Temperature Dependent Partition Functions](#). *Eur.Biophys.J.*, 22:13–24, 1993. Also published as: Preprint No. 92-08-040, Santa Fe Institute, Santa Fe, NM 1992.  
Citations: 31.
- [103] W. Fontana, P. F. Stadler, E. G. Bornberg-Bauer, T. Griesmacher, I. L. Hofacker, M. Tacker, P. Tarazona, E. D. Weinberger, and P. Schuster. [RNA Folding and Combinatory Landscapes](#). *Phys.Rev.E*, 47:2083–2099, 1993. Also published as: Preprint No. 92-10-051, Santa Fe Institute, Santa Fe, NM 1992.  
Citations: 84.

- [104] P. Schuster. RNA based evolutionary optimization. *Origins of Life*, 23:373–391, 1993. Also published as: “Evolution in an RNA World.” In: Cyril Ponnampereuma and Julian Chela-Flores, eds. Chemical Evolution Series: I. Origin of Life, pages 51-68. A. Deepak Publ. Hampton, VA 1993, and “Minimal Properties for Evolutionary Optimization.” In: John L. Casti and Anders Karlqvist, eds. Cooperation and Conflict in General Evolutionary Processes, pages 359-382. John Wiley & Sons, Inc. New York 1995. Citations: 18.
- [105] I. L. Hofacker, P. Schuster, and P. F. Stadler. Combinatorics of RNA secondary structures. *Discr.Appl.Math.*, 89:177–207, 1998. Citations: 9.
- [106] P. Schuster. How do RNA molecules and viruses explore their worlds? In G. A. Cowan, D. Pines, and D. Meltzer, editors, *Complexity: Methaphors, Models, and Reality*, volume XIX of *Santa Fe Institute Studies in the Sciences of Complexity*, pages 383–418. Addison-Wesley, Reading, MA, 1994. Citations: 6.
- [107] I. L. Hofacker, W. Fontana, P. F. Stadler, L. S. Bonhoeffer, M. Tacker, and P. Schuster. **Fast Folding and Comparison of RNA Secondary Structures**. *Mh.Chemie*, 125:167–188, 1994. Also published as: Preprint No. 93-07-044, Santa Fe Institute, Santa Fe, NM 1993. Citations: 218.
- [108] P. Schuster, W. Fontana, P. F. Stadler, and I. L. Hofacker. **From Sequences to Shapes and Back: A Case Study in RNA secondary Structures**. *Proc.R.Soc.Lond. B*, 255:279–284, 1994. Also published as: Preprint No. 93-07-045, Santa Fe Institute, Santa Fe, NM 1993. Citations: 130.
- [109] M. Tacker, W. Fontana, P. F. Stadler, and P. Schuster. **Statistics of RNA Melting Kinetics**. *Eur.Biophys.J.*, 23:29–38, 1994. Also published as: Preprint No. 93-06-043, Santa Fe Institute, Santa Fe, NM 1993. Citations: 25.
- [110] P. F. Stadler, P. Schuster, and A. S. Perelson. Immune networks modeled by replicator equations. *J.Math.Biol.*, 33:111–137, 1994.

Also published as: Preprint No. 93-07-048, Santa Fe Institute, Santa Fe, NM 1993.

Citations: 3.

- [111] P. Schuster. Extended molecular evolutionary biology: Artificial life bridging the gap between chemistry and biology. *Artificial Life*, 1:39–60, 1994. Also published in: Steffen Schulze-Kremer, ed. *Advances in Molecular Bioinformatics*, pages 223-246. IOS Press, Amsterdam 1994. Citations: 3.
- [112] P. Schuster and P. F. Stadler. [Landscapes: Complex Optimization Problems and Biopolymer Structures](#). *Computers & Chemistry*, 18:295–324, 1994. Also published as: Preprint No. 93-11-069, Santa Fe Institute, Santa Fe, NM 1993.  
[Citations: 38.](#)
- [113] P. Schuster. [How to Search for RNA Structures. Theoretical Concepts in Evolutionary Biotechnology](#). *J.Biotechnol.*, 41:239–257, 1995.  
[Citations: 27.](#)
- [114] P. F. Stadler, W. Schnabl, C. Forst, and P. Schuster. Dynamics of small autocatalytic reaction networks. II: Replication, mutation and catalysis. *Bull.Math.Biol.*, 57:21–61, 1995. Citations: 12.
- [115] A. Maier, H. Sklenar, H. F. Kratky, A. Renner, and P. Schuster. Predicting RNA structural motifs by conformational search: GNRA tetraloops and their pyrimidine relatives. *Eur.Biophys.J.*, 28:564–573, 1999. Citations: 3.
- [116] T. Wiehe, E. Baake, and P. Schuster. Error propagation in reproduction of diploid organisms. A case study in single peaked landscapes. *J.Theor.Biol.*, 177:1–15, 1995. Citations: 19.
- [117] P. F. Stadler and P. Schuster. Permanence of sparse autocatalytic networks. *Math. Biosciences*, 131:111–134, 1996. Citations: 5.
- [118] C. Reidys, P. F. Stadler, and P. Schuster. [Generic Properties of Combinatory Maps. Neutral Networks of RNA Secondary Structure](#). *Bull.Math.Biol.*, 59:339–397, 1997. Also published as: Preprint No. 95-07-058, Santa Fe Institute, Santa Fe, NM 1995.  
[Citations: 53.](#)

- [119] S. Baskaran, P. F. Stadler, and P. Schuster. Approximate scaling properties of RNA free energy landscapes. *J.Theor.Biol.*, 181:299–310, 1996. Also published as: Preprint No. 95-10-083, Santa Fe Institute, Santa Fe, NM 1995. Citations: 7.
- [120] W. Grüner, R. Giegerich, D. Strothmann, C. Reidys, J. Weber, I. L. Hofacker, and P. Schuster. Analysis of RNA sequence structure maps by exhaustive enumeration.  
I. Neutral networks. *Mh.Chemie*, 127:355–374, 1996. Citations: 1.
- [121] W. Grüner, R. Giegerich, D. Strothmann, C. Reidys, J. Weber, I. L. Hofacker, and P. Schuster. Analysis of RNA sequence structure maps by exhaustive enumeration.  
II. Structures of neutral networks and shape space covering. *Mh.Chemie*, 127:375–389, 1996. Citations: 2.
- [122] P. Schuster. Evolutionary biotechnology. Theory, facts, and perspectives. *Acta Biotechnologica*, 16:3–17, 1996. Citations: 8.
- [123] M. Tacker, P. F. Stadler, E. G. Bornberg-Bauer, I. L. Hofacker, and P. Schuster. [Algorithm Independent Properties of RNA Secondary Structure Predictions](#). *Eur.Biophys.J.*, 25:115–130, 1996. Also published as: Preprint No. 96-04-016, Santa Fe Institute, Santa Fe, NM 1996.  
[Citations: 23](#).
- [124] P. Schuster. How does complexity arise in evolution? *Complexity*, 2(1):22–30, 1996. Also published as: *Commentarii* Vol.IV-3, 225-244 Città del Vaticano, 1997, contribution to J. Götschl, ed., *Evolution and Progress in Democracies. Towards New Foundations of a Knowledge Society*, Kluwer Academic Publishers, Dordrecht, NL, pp.147-159, and Preprint No. 96-05-026, Santa Fe Institute, Santa Fe, NM 1996. Citations: 9.
- [125] P. Schuster. Landscapes and molecular evolution. *Physica D*, 107:351–365, 1997.  
Also published as: Preprint No. 96-07-047, Santa Fe Institute, Santa Fe, NM 1996.  
German translation: *Beherrschung von Komplexität in der Molekularen Evolution*. In: Klaus Mainzer, Ed. *Komplexe Systeme*

*und Nichtlineare Dynamik in Natur und Gesellschaft.*  
*Komplexitätsforschung in Deutschland auf dem Weg ins nächste*  
*Jahrhundert*, pp.117-145. Springer-Verlag, Berlin 1999. Citations: 19.

- [126] R. Hecht, R. Happel, P. Schuster, and P. F. Stadler. Autocatalytic networks with intermediates I: Irreversible reactions. *Math.Biosciences*, 140:33–74, 1997. Also published as: Preprint No. 96-05-024, Santa Fe Institute, Santa Fe, NM 1996. Citations: 6.
- [127] T. Fagerström, P. Jagers, P. Schuster, and E. ors Szathmary. Biologists put on mathematical glasses. *Science*, 274:2039–2040, 1996. Citations: 5.
- [128] P. Schuster, P. F. Stadler, and A. Renner. [RNA Structures and Folding. From conventional to new issues in structure predictions.](#) *Current Opinion in Structural Biology*, 7:229–235, 1997. Citations: 26.
- [129] P. Schuster. Genotypes with phenotypes: Adventures in an RNA toy world. *Biophys.Chem.*, 66:75–110, 1997. Also published as: Preprint No. 97-04-036, Santa Fe Institute, Santa Fe, NM 1997. Citations: 11.
- [130] P. E. Phillipson and P. Schuster. Analytics of bifurcation. *Int.J. of Bifurcation and Chaos*, 8:471–482, 1998. Citations: 5.
- [131] W. Fontana and P. Schuster. [Shaping Space. The Possible and the Attainable in RNA Genotype-Phenotype Mapping.](#) *J.Theor.Biol.*, 194:491–515, 1998. Also published as: Preprint No. 97-11-081, Santa Fe Institute, Santa Fe, NM 1997. Citations: 27.
- [132] C. Reidys, C. Forst, and P. Schuster. Replication and mutation on neutral networks. *Bull.Math.Biol.*, 63:57–94, 2001. Also published as: Preprints No. 98-04-036, and No. 00-11-061, Santa Fe Institute, Santa Fe, NM 1998 and 2000. Citations: 12.
- [133] W. Fontana and P. Schuster. [Continuity in Evolution. On the Nature of Transitions.](#) *Science*, 280:1451–1455, 1998. Also published as: Preprint No. 98-04-030, Santa Fe Institute, Santa Fe, NM 1998. Citations: 90.



- [134] S. Wuchty, W. Fontana, I. L. Hofacker, and P. Schuster. [Complete Suboptimal Folding of RNA and the Stability of Secondary Structures](#). *Biopolymers*, 49:145–165, 1999. Also published as: Preprint No. 98-05-040, Santa Fe Institute, Santa Fe, NM 1998. Citations: 51.
- [135] P. Schuster and P. F. Stadler. Nature and evolution of early replicons. In E. Domingo, R. Webster, and J. Holland, editors, *Origin and Evolution of Viruses*, pages 1–24. Academic Press, San Diego, 1999. Citations: 17.
- [136] P. Schuster and W. Fontana. Chance and necessity in evolution: Lessons from RNA. *Physica D*, 133:427–452, 1999. Also published as: Preprint No. 98-11-107, Santa Fe Institute, Santa Fe, NM 1998. Citations: 17.
- [137] P. Schuster and P. Wolschann. Hydrogen bonding: From small clusters to biopolymers. *Mh.Chem.*, 130:947–960, 1999. Citations: 10.
- [138] P. E. Phillipson and P. Schuster. Bifurcation dynamics of three dimensional systems. *Int. J. of Bifurcation and Chaos*, 10:1787–1804, 2000. Citations: 9.
- [139] C. Flamm, W. Fontana, I. L. Hofacker, and P. Schuster. [Elementary Step Dynamics of RNA Folding](#). *RNA*, 6:325–338, 1999. Citations: 35.
- [140] P. Schuster and P. F. Stadler. Discrete models of biopolymers. In M. J. C. Crabbe, M. Drew, and A. Konopka, editors, *Handbook of Computational Chemistry*, chapter 5, pages 187–222. Marcel Dekker, New York, 2004. Citations: 2.
- [141] P. Schuster. Molecular insight into the evolution of phenotypes. In J. P. Crutchfield and P. Schuster, editors, *Evolutionary Dynamics – Exploring the Interplay of Accident, Selection, Neutrality, and Function*, pages 163–215. Oxford University Press, New York, 2003. Citations: 1.
- [142] B. M. R. Stadler, P. F. Stadler, and P. Schuster. Dynamics of autocatalytic replicator networks based on higher order ligation reactions. *Bull. Math. Biol.*, 62:1061–1086, 2000. Citations: 3.

- [143] P. Schuster. Taming combinatorial explosions. *Proc. Natl. Acad. Sci. USA*, 97:7678–7680, 2000. Citations: 4.
- [144] P. E. Phillipson and P. Schuster. Dynamics of relaxation oscillations. *Int. J. of Bifurcation and Chaos*, 11:1471–1482, 2001. Citations: 2.
- [145] J. P. Crutchfield and P. Schuster. Dynamics of evolutionary processes. In J. P. Crutchfield and P. Schuster, editors, *Evolutionary Dynamics – Exploring the Interplay of Accident, Selection, Neutrality, and Function*, pages xiii–xxxiv. Oxford University Press, New York, 2003. Citations: 3.
- [146] P. E. Phillipson and P. Schuster. Bistability of harmonically forced relaxation oscillations. *Int. J. of Bifurcation and Chaos*, 12:1295–1307, 2002.
- [147] P. Schuster. Ursprung des Lebens und Evolution von Molekülen. In P. Weingartner, editor, *Evolution als Schöpfung? Ein Streitgespräch zwischen Philosophen, Theologen und Naturwissenschaftlern*, pages 219–258, Stuttgart, DE, 2001. Verlag W. Kohlhammer.
- [148] P. Schuster. Evolution *in silico* and *in vitro*: The RNA model. *Biol. Chem.*, 382:1301–1314, 2001. Citations: 3.
- [149] P. Schuster. Quo vadit *Complexity*. *Complexity*, 7(1):3–4, 2002.
- [150] P. Schuster. Evolutionary biotechnology – From ideas and concepts to experiments and computer simulation. In S. Brakmann and K. Johnsson, editors, *Directed Molecular Evolution of Proteins*, chapter 2, pages 5–28. Wiley - VCH, Weinheim, DE, 2002.
- [151] P. E. Phillipson and P. Schuster. An analytic picture of neuron oscillation. *Int. J. of Bifurcation and Chaos*, 14:1539–1548, 2004.
- [152] P. Schuster and P. F. Stadler. Networks in molecular evolution. *Complexity*, 8(1):34–42, 2003.
- [153] P. Schuster. The disaster of central control. An impressive example from nature. *Complexity*, 9(4):13–14, 2004.