Helmut Hofer
Publication List

Journal Articles:

(1) *A multiplicity result for a class of nonlinear problems with applications to a nonlinear wave equation.* Jour. of Nonlinear Analysis, Theory, Methods and Applications, 5, No. 1 (1981), 1-11

(2) *Existence and multiplicity result for a class of second order elliptic equations.* Proc. of the Royal Society of Edinburgh, **88A** (1981), 83-92

(3) *A new proof for a result of Ekeland and Lasry concerning the number of periodic Hamiltonian trajectories on a prescribed energy surface.* Bolletino UMI **6**, 1-B (1982), 931-942

(4) *A variational approach to a wave equation problem at resonance.* Metodi asintoctici e topologici in problemi differenziali non lineari; ed. L. Boccardo, A.M. Micheletti, Collano Atti di Congressi, Pitagora Editrice, Bologna (1981), 187-200

(5) *On the range of a wave operator with nonmonotone nonlinearity.* Math. Nachrichten **106** (1982), 327-340

(6) *Variational and topological methods in partially ordered Hilbert spaces.* Math. Annalen **261** (1982), 493-514

(7) *On strongly indefinite funtionals with applications.* Transactions of the AMS **275**, No. 1 (1983), 185-213

(8) *A note on the topological degree at a critical point of mountainpass-type.* Proc. of the AMS **90**, No. 2 (1984), 309-315

(9) *Homoclinic, heteroclinic and periodic orbits for indefinite Hamiltonian systems* (with J. Toland). Math. Annalen **268** (1984), 387-403

(10) *The topological degree at a critical point of mountainpasstype.* AMS Proceedings of Symposia in Pure Math. **45**, Part 1 (1986) 501-509

(11) *A geometric description of the neighborhood of a critical point given by the mountainpass-theorem.* Proc. of the London Math. Society **31** (1985), 566-570

(12) *Periodic solutions of prescribed minimal period for convex Hamiltonian systems* (with I. Ekeland). Inv. Math. **81** (1985), 155-188

(13) *Free oscillations of prescribed energy at a saddle point of the potential in Hamiltonian dynamics* (with J. Toland). Delft Progress Report **10** (1985), 238-249

(14) *Lagrangian embeddings and critical point theory.* Ann. IHP, Analyse Nonlineare **6** (1985), 407-463

(15) *Subharmonic solutions for convex non autonomous Hamiltonian systems* (with I. Ekeland). Comm. Pure and Appl. Math., Vol. XI, No. 1 (1987), 1-36

(16) *Relations between global invariants of convex contact manifolds and local invariants of their periodic Hamiltonian trajectories.* Proc. of a Conference on Recent Advances in Hamiltonian Systems 1987, World Scientific (1987), 177-205

(17) *Periodic solutions on hypersurfaces and a result by C. Viterbo* (with E. Zehnder). Inv. Math. **90** Fasc 1 (1987), 1-9

(18) *Global and local invariants for convex hypersurfaces and their periodic trajectories; a survey.* (with I. Ekeland). Nato ASI Series C: **209**, Periodic solutions of Hamiltonian systems and related topics, (1987), 139-146

(19) *A remark on a priori bounds for periodic solutions of Hamiltonian systems*(with V. Benci and P. Rabinowitz). Nato ASI Series C: **209**, Periodic solutions of Hamiltonian systems and related topics (1987), 85-88

(20) *A strong form of the mountain pass theorem and application.* Nonlinear Diffusion Equations and their Equilibrium States I, Springer, MSRI Publications, 341-351

(21) *Convex Hamiltonian energy surfaces and their periodic trajectories* (with I. Ekeland). Comm. in Math. Physics **113** (1987), 419-469

(22) *Sur les hypersurfaces convexes et leurs caractéristiques fermées.* (with I. Ekeland), CRAS, Paris **304**, Serie I (1987), 237-240

(23) *The Weinstein conjecture in cotangent bundles and related results* (with C. Viterbo). Annali di Scuola Normale Superiore di Pisa, Serie IV, Vol. XV, Fasc III (1988), 411-445

(24) *Two symplectic fixed point theorems with applications to Hamiltonian dynamics* (with I. Ekeland). Journ. Math. Pure et Appl. **68** (1989), 467-489

(25) *Liusternik–Schnirelman–theory for Lagrangian intersections.* Ann. IHP, Analyse Nonlinéaire **5**, no. 5 (1988), 465-499

(26) *The Weinstein conjecture in $P \times \mathbf{C}^e$* (with A. Floer and C. Viterbo). Math. Zeit. **203** (1990), 469-482

(27) *Symplectic topology and Hamiltonian dynamics* (with I. Ekeland). Math. Zeit. **200** (1989), 355-378

(28) *Recent progress in symplectic geometry.* Lectures in Pure and Appl. Math **121**, 49-94 (Marcel Decker)

(29) *Capacités symplectiques* (with I. Ekeland). CRAS, Paris, t. 307, Serie I (1988) 37-40

(30) *Symplectic topology and Hamiltonian dynamics* (with I. Ekeland). Séminaire sur les Equations aux Dérivées Partielles 1987–1988, Exp. No XXIII 4pp Ecole Polytechnique, Palaiseau, 1988

(31) *Symplectic topology and Hamiltonian dynamics II* (with I. Ekeland). Math. Zeit. **203** (1990), 553-567

(32) *A new capacity for symplectic manifolds* (with E. Zehnder). Analysis et cetera (P. Rabinowitz, E. Zehnder eds.) Academic Press 1990, 405-428

(33) *First order elliptic systems and the existence of homoclinic orbits in Hamiltonian systems* (with K. Wysocki). Math. Annalen **288** (1990), 483-503

(34) *On the topological properties of symplectic maps.* Proceedings of the Royal Society of Edinburgh **115 A** (1990), 25-38.

(35) *The Weinstein conjecture in the presence of holomorphic spheres* (with C. Viterbo). Comm. Pure Appl. Vol. XLV (1992), 583-622

(36) *Towards the definition of symplectic boundary* (with Y. Eliashberg). Geometric and Functional Analysis **2**, No. 2 (1992) 211-220.

(37) *Coherent orientation for periodic orbit problems in symplectic geometry* (with A. Floer). Math. Zeit. **212** (1993), 13-38

(38) *Symplectic homology I: Open sets in C^n* (with A. Floer), Math. Zeit. **215** (1994), 37-88

(39) *Symplectic homology II:A General Construction* (with K. Cieliekak, A. Floer and K. Wysocki). Math. Zeit. **218** (1995), 103-122

(40) *Applications of symplectic homology I* (with A. Floer and K. Wysocki). Math. Zeit. **217** (1994), 577-606

(41) *Symplectic capacities.* Proceedings of the Durham Conference on Low–Dimensional Topology, (edited by S. Donaldson and C. Thomas), Cambridge University Press, London Mathematical Society Lecture Notes 151 (1990)

(42) *Topological properties of symplectic maps.* Pitman Research Notes on Mathematics **243** (1992), 113-119

(43) *Symplectic invariants.* Proceedings of the ICM Kyoto 1990, Springer 1991, 521-528

(44) *An energy–capacity inequality for the symplectic holonomy of hypersurfaces flat at infinity* (with Y. Eliashberg). Symplectic

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(45) *Floer homology and Novikov rings* (with D. Salamon). The Floer Memorial Volume, Progress in Math. Vol. 133, Birkhäuser

(46) *Estimates for the energy of a symplectic map.* Comm. Math. Helv. **68**(1993), 48-72

(47) *Unseen symplectic boundaries* (with Y.Eliashberg). Volume in honour of E. Calabi

(48) *Pseudoholomorphic curves in symplectisation with applications to the Weinstein conjecture in dimension three.* Inv. Math. 114(1993), 515-563

(49) *A Hamiltonian characterization of the three–ball* (with Y. Eliashberg). Journal of Differential and Integral Equations, Vol.7 No.5 (1994), 1303-1324

(50) *Transversality results in the elliptic Morse theory of the action functional* (with A. Floer and D. Salamon). Duke Mathematical Journal, Vol. 80 No. 1 (1995), 251-292

(51) *Properties of pseudoholomorphic curves in symplectisations II: Embedding controls and algebraic invariants* (with K. Wysocki and E. Zehnder). Geometric and Functional Analysis, Vol. 5 No.2 (1995), 270–328

(52) *A Characterisation of the Tight Three-Sphere* (with K. Wysocki and E. Zehnder). Duke Mathematical Journal, Vol. 81, No. 1 (1995), 159–226

(53) *Lagrangian intersections in contact geometry* (with Y. Eliashberg and D. Salamon). Geometric and Functional Analysis, Vol.5 No. 2 (1995), 244–269

(54) *Symplectic invariants and Hamiltonian dynamics* (with E. Zehnder). The Floer Memorial Volume, Progress in Mathematics 133, Birkhäuser 1995

(55) *Properties of pseudoholomorphic curves in symplectisations I: Asymptotics* (with K. Wysocki and E. Zehnder). Ann. Inst. Henri Poincaré, Analyse Nonlineaire, Vol. 13, No.3 (1996), 337-379

(56) *Applications of symplectic homology II* (with K. Cieliebak, A. Floer and K. Wysocki). Math. Zeit. **223** (1996), 27-45

(57) *Properties of pseudoholomorphic curves in symplectisations IV: Asymptotics with degeneracies* (with K. Wysocki and E. Zehnder), Contact and Symplectic Geometry, edited by C. Thomas, Cambrige University Press 1996

(58) *On genericity for holomorphic curves in 4-dimensional almost-complex manifolds* (with V. Lizan and J.-C. Sikorav). Journal of Geometric Analysis, Vol. 7, No. 1, 1998

(59) *The Dynamics on Three-Dimensional Strongly Convex Energy Surfaces* (with K. Wysocki and E. Zehnder). Annals of Mathematics, Vol. 148 (1998), 197-289.

(60) *Unknotted periodic orbits for Reeb flows on the three-sphere* (with K. Wysocki and E. Zehnder). Topol. Meth. in Nonli. Analysis **7** (1996), 219–244.

(61) *Holomorphic curves in contact dynamics* (with M. Kriener). Proceedings of Symposia in Pure Mathematics Vol. 66 (1999), 77-131.

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(63) *Properties of pseudoholomorphic curves in symplectisations III: Fredholm theory* (with K. Wysocki and E. Zehnder). In Progress in Nonlinear Differential Equations and Their Applications Vol. 35 (Ed. J. Escher and G. Simonett), 381-477.

(64) *Holomorphic curves and dynamics in dimension three.* IAS/Park City Math. Ser. Vol. 7, AMS 1999, 35-101.

(65) *Pseudoholomorphic curves and dynamics* (with E. Zehnder). "The Arnold-Fest", Fields Inst. Commun. AMS, 1999, 225-239.

(66) *Dynamics, Topology and Holomorphic Curves* . Proceedings of the ICM Berlin, vol. I

(67) *Introduction to Symplectic Field Theory* (with Y. Eliashberg and A. Givental), GAFA 2000, Special Volume, Part II, pp560-673

(68) *Holomorphic curves and real three-dimensional dynamics*, GAFA 2000, Special Volume, part II, pp674-704.

(69) *Pseudoholomorphic curves and dynamics in three dimensions* (with K. Wysocki and E. Zehnder). Handbook on Dynamical Systems Vol. 1A, Elsevier (2002), 1129-1188.

(70) *Finite Energy Cylinders of Small Area* (with K. Wysocki and E. Zehnder). Journal of Ergodic Theory and Dynamical Systems Vol. 22 No. 5 (2002), 1451–1486.

(71) *Finite Energy Foliations Of Tight Three-Spheres and Hamiltonian Dynamics* (with K. Wysocki and E. Zehnder). Annals Vol. 157 No. 1 (2003), 125-255.

(72) *Compactness Results in Symplectic Field Theory* (with F. Bourgeois, Y. Eliashberg, K. Wysocki and E. Zehnder). Geometry and Topology Vol. 7 (2004), 799-888.

(73) *The Weinstein Conjecture for Planar Contact Structures in Dimension Three* (with C. Abbas and K. Cieliebak), Comment. Math. Helv. 80 (2005), no. 4, 771–793.

(74) *A General Fredholm Theory and Applications*, Current Developments in Mathematics, 2004, Year Published: 2006, Ed. Barry Mazur, Harvard University; Wilfried Schmid, Harvard University; Shing-Tung Yau, Harvard University; David Jerison, M.I.T.; Tomasz Mrowka, M.I.T.; Richard Stanley, M.I.T., International Press.

(75) *Quantitative symplectic geometry* (with K. Cieliebak, J. Latschev and F. Schlenk), Dynamics, ergodic theory, and geometry, 1–44, Math. Sci. Res. Inst. Publ., 54, Cambridge Univ. Press, Cambridge, 2007.

(76) *A General Fredholm Theory I: A Splicing-Based Differential Geometry* (with K. Wysocki and E. Zehnder), JEMS Volume 9, Issue 4, (2007), 841-876.

(77) *A General Fredholm Theory II: Implicit Function Theorems* (with K. Wysocki and E. Zehnder), GAFA Volume 19, Number 1,(2009),206-293.

(78) *On the Weinstein conjecture in higher dimensions* (with P. Albers), to appear Comment. Math. Helv. Volume 84, Issue 2,(2009), 429-436.

(79) *A General Fredholm Theory III: Fredholm Functors and Polyfolds* (with K. Wysocki and E. Zehnder), Geometry and Topology 13:4 ,(2009), 2279-2387.

(80) *Polyfolds and a general Fredholm theory*, to appear in Proceedings of the 2008 Clay research conference.

(81) *Integration theory on the zero sets of polyfold Fredholm sections* (with K. Wysocki and E. Zehnder), submitted.

Books: Mathematical

(1) *Symplectic Invariants and Hamiltonian Dynamics* (with E. Zehnder). Advanced Texts in Mathematics, Birkhäuser

(2) *The Floer Memorial Volume* (edited jointly with C. Taubes, A. Weinstein and E. Zehnder), Progress in Mathematics Vol. 133, Birkhäuser

Books: Non-mathematical

(1) *Innovation, Venture Capital, Arbeitsplaetze* (Edited jointly with A. Scheidegger and G. Scheuenstuhl, in German) Haupt Verlag

In Preparation:

(1) *Holomorphic Curves and Global Questions in Contact Geometry* (with C. Abbas), in preparation.

(2) *Connections and Determinant Bundles for Polyfold Fredholm Operators* (with K. Wysocki and E. Zehnder)

(3) *Applications of Polyfold Theory I: Gromov-Witten Theory* (with K. Wysocki and E. Zehnder)

(4) *Applications of Polyfold Theory II: The Polyfolds of Symplectic Field Theory* (with K. Wysocki and E. Zehnder)