

# Jerry A Sellwood – Curriculum Vitae

## Contact information

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## Education and qualifications

<i>Level</i>	<i>Dates</i>	<i>Institution</i>	<i>Qualifications</i>
Postgraduate	1974 – 1977	Manchester University England	Ph.D.
Postgraduate	1971 – 1972	Makerere University Kampala, Uganda	Diploma in Education
Undergraduate	1968 – 1971	Bristol University England	B.Sc. Honours in Physics Grade 2.1

## Professional career

Jul 1998 – Professor, Department of Physics & Astronomy  
Rutgers University, New Jersey  
Sep 1991 – Jun 1998 Associate Professor, Department of Physics & Astronomy  
Rutgers University, New Jersey  
Oct 1990 – Oct 1991 Associate Astronomer  
Space Telescope Science Institute, Baltimore  
Oct 1989 – Sep 1990: Senior Research Associate  
Institute of Astronomy, Cambridge, England  
Jan 1986 – Sep 1989: SERC Advanced Fellow  
Department of Astronomy, Manchester University, England  
Feb 1984 – Dec 1985: Research Fellow  
Kapteyn Laboratory, University of Groningen, The Netherlands  
Oct 1980 – Jan 1984: Research Associate  
Institute of Astronomy, Cambridge, England  
Nov 1979 – Sep 1980: ESO Fellow  
European Southern Observatory, Geneva, Switzerland  
Nov 1977 – Oct 1979: NATO Research Fellow (administered by UK SERC)  
Stockholm Observatory, Sweden and ESO, Geneva, Switzerland

## Membership of learned societies

<i>Dates</i>	<i>Status</i>	<i>Society</i>
1992 – 2006	Founder member	European Astronomical Society
1984 - present	Full member	American Astronomical Society
2000 - present	Member	AAS Division on Dynamical Astronomy
1982 - present	Member	International Astronomical Union, Commission 33
1982 – 2006	Fellow	Royal Astronomical Society

## Research interests

Galaxies, dark matter, galactic structure, galaxy formation, stellar dynamics, accretion discs, star formation,  $N$ -body simulations, computational astrophysics. For more information, see: <http://www.physics.rutgers.edu/~sellwood>

## Academic visits

Jan – Jun 2003:	Member, Institute for Advanced Study, Princeton, USA
Jan – Jun 1998:	Isaac Newton Institute for Mathematical Sciences, Cambridge, England
Jan – May 1995:	Canadian Institute for Theoretical Astrophysics, Toronto, Canada
Jun – Aug 1987:	Lick Observatory, Santa Cruz, USA
Oct – Nov 1983:	Visitor, Institute for Advanced Study, Princeton, USA

## Academic honors

October 1998: Elected Life Member of Clare Hall, Cambridge.  
Graduate Teaching Award from Rutgers University Graduate School, April 1999

## University representative

Designated University Member Representative in AURA (the Association of Universities for Research in Astronomy) (July 1999 – March 2006). Served on the Membership Committee and a Working Group on International Affiliates. Continued service on AURA Membership Committee, March 2006 – June 2007

## Other Committees

Brouwer Award Selection Committee (Sept 2006 - Sept 2009, Chair 08/09)

## External reviewer for grant awarding agencies

Proposal review for grant awarding agencies: NSF, NASA, NRC, Canadian NSERC, British SERC/PPARC, Italian Ministry for University Research, Canada-France-Hawaii Telescope Time Allocation Committee, British Panel for the Allocation of Telescope Time, International Science Foundation, Israel Science Foundation, Netherlands Organisation for Science Research (NWO), Research Foundation of Flanders (FWO Belgium), Universiteit Gent Onderzoeksraad (Research Council)

Grant Review Panels: NASA, HST-TAC & NSF

## Conference Organization

Deputy-chair of SOC: 90th Birthday for Kuz'min. St Petersburg, Russia, Jul 2007

SOC member: *Island Universes: Structure and Evolution of Disk Galaxies* Terschelling, The Netherlands, Jul 4-8, 2005

Co-chair of SOC (with Prof. A. Klypin, NMSU) of *Dynamics of Galaxies: Baryons and Dark Matter* held at the University of Nevada, Las Vegas, March 10 – 12, 2005

SOC member *Kinematics and Dynamics of Discs of Galaxies* Puebla, Mexico (November 5-9, 2001)

Co-organizer (with Prof. D. Spergel, Prof. A. Kosowsky and Prof. J. Bahcall) of the Rutgers-Princeton W. M. Keck workshop *Galaxies and the Dark Matter Problem* held at the Institute for Advanced Study, Princeton (May 31 – June 2, 2001)

SOC member *Dynamics of Star Clusters and the Milky Way* Astronomisches Rechen-Institut Heidelberg, Germany (March 20-24, 2000)

Co-organizer (member of both SOC & LOC) of *Galaxy Dynamics* held at Rutgers University (August 8 – 12, 1998)

Principal organizer of *Astrophysical Discs* an EC Summer School held at the Isaac Newton Institute for Mathematical Sciences, Cambridge University, England

Co-organizer of a six month workshop *Dynamics of Astrophysical Discs* held at the Isaac Newton Institute for Mathematical Sciences, Cambridge University, England (Jan – Jul 1998)

Principal organizer of *Dynamics of Astrophysical Discs* held at Manchester University, England (Dec 1988)

Co-organizer of ESO mini-workshop *Galaxy Dynamics* held at CERN, Geneva, Switzerland (Jun 1979)

### PhD & masters students supervised

<i>Dates</i>	<i>Student</i>	<i>Capacity</i>	<i>University</i>
Jan 08 – present	Mike Solway	Chair	Rutgers
Sep 04 – Jun 06	Adam Reese	Masters	Rutgers
Sep 03 – Sep 09	Ricardo Sanchez	Chair	Rutgers
Jan 01 – Aug 05	Juntai Shen	Chair	Rutgers
Sep 96 – Oct 04	Vincent Jacobs	Chair	Rutgers
Sep 94 – Oct 98	Victor Debattista	Chair	Rutgers
Sep 91 – Jan 98	Benjamin Weiner	Co-chair	Rutgers
1989 – 1993	David Earn	Co-chair	Cambridge
1985 – 1990	Neil Raha	Co-chair	Manchester

### Undergraduate Student Research Projects at Rutgers

<i>Dates</i>	<i>Student</i>	
Jun 10 – Sep 10	Chang Hoon Hahn	Summer research experience
Jun 07 – Jul 08	John Jardel	Honors student
Jun 07 – Aug 07	Amanda Lundberg	Summer research experience
Jun 00 – Aug 00	Brian Powell	Summer research experience
Sep 93 – Aug 94	Steve Gilbert	Honors student
Sep 92 – Aug 93	Mark Paris	Honors student

# J. A Sellwood – Publications

## Major invited and refereed reviews

*In preparation*

- 1 “Secular Evolution in Galaxies” for *Reviews of Modern Physics*

*Appeared or accepted for publication*

- 2 Sellwood, J. A. 2010, “Dynamics of Disks and Warps” in “Planets, Stars & Stellar Systems” **5**, ed. G. Gilmore (Heidelberg: Springer) (in press) (arXiv:1006.4855)
- 3 Sellwood, J. A. & Wilkinson, A. 1993, “Dynamics of Barred Galaxies” *Reports on Progress in Physics*, **56**, pp 173–255 (astro-ph/0608665)
- 4 Sellwood, J. A. 1987, “The Art of  $N$ -body Building” *Annual Review of Astronomy and Astrophysics*, **25**, pp 151–186

## Papers in refereed journals

*Articles in preparation*

- 5 Sellwood, J. A. “Recurrent Spiral Instabilities in  $N$ -body Simulations”
- 6 Hahn, C. H. & Sellwood, J. A. “Solar Neighbourhood Kinematics from RAVE and SDSS”

*Articles appeared or accepted for publication*

- 7 Sellwood, J. A. 2010, “The Lifetimes of Spiral Patterns in Disc Galaxies” *Monthly Notices of the Royal Astronomical Society*, accepted Aug-17-2010 (arXiv:1008.2737)
- 8 Sellwood, J. A. 2010, “A Recent Lindblad Resonance in the Solar Neighborhood” *Monthly Notices of the Royal Astronomical Society*, **409**, 145–155 (arXiv:1001.5197)
- 9 Sellwood, J. A. & Zánmar Sánchez, R. 2010, “Quantifying Non-circular Streaming Motions in Disc Galaxies” *Monthly Notices of the Royal Astronomical Society*, **404**, 1733–1744 (arXiv:0912.5493)
- 10 Sellwood, J. A. & Debattista, V. P. 2009, “Stochasticity in  $N$ -body Simulations of Disc Galaxies” *Monthly Notices of the Royal Astronomical Society*, **398**, 1279–1297 (arXiv:0903.3554)
- 11 Freese, K., Gondolo, P., Sellwood, J. A. & Spolyar, D. 2009, “Dark Matter Densities during the Formation of the First Stars and in Dark Stars” *The Astrophysical Journal*, **693**, 1563–1569 (arXiv:0805.3540)
- 12 Jardel, J. & Sellwood, J. A. 2009, “Halo Density Reduction by Baryonic Settling?”, *The Astrophysical Journal*, **691**, 1300–1306 (arXiv:0808:3449)

- 13 Sellwood, J. A. 2008, “Bar-Halo Friction in Galaxies III: Halo Density Changes”, *The Astrophysical Journal*, **679**, 379–396 (astro-ph/0610468)
- 14 Zánmar Sánchez, R., Sellwood, J. A., Weiner B. J. & Williams, T. B. 2008, “Modeling the Gas Flow in the Bar of NGC 1365” *The Astrophysical Journal*, **674**, 797–813 (astro-ph/0710.5286)
- 15 Spekkens, K. & Sellwood, J. A. 2007, “Modeling Bisymmetric Distortions in Disk Galaxies: Application to NGC 2976”, *The Astrophysical Journal*, **664**, 204–214 (astro-ph/0703688)
- 16 Reese, A., Williams, T. B., Sellwood, J. A., Barnes, E. I. & Powell, B. A. 2007, “Photometric Decomposition of Barred Galaxies” *The Astronomical Journal*, **133**, 2846–2858 (astro-ph/0702720)
- 17 Barnes, E. I., Kosowsky, A. & Sellwood, J. A. 2007, “Milgrom Relation Mass Models for Spiral Galaxies from Two-Dimensional Velocity Maps” *The Astronomical Journal*, **133**, 1698–1709 (astro-ph/0701535)
- 18 Shen, J. & Sellwood, J. A. 2006, “Galactic Warps Induced by Cosmic Infall” *Monthly Notices of the Royal Astronomical Society*, **370**, 2–14 (astro-ph/0604529)
- 19 Sellwood, J. A. & Debattista, V. P. 2006, “Bar-Halo Friction in Galaxies II: Metastability” *The Astrophysical Journal*, **639**, 868–878 (astro-ph/0511155)
- 20 Sellwood, J. A. 2006, “Bar-Halo Friction in Galaxies I: Scaling Laws” *The Astrophysical Journal*, **637**, pp 567–581 (astro-ph/0407533)
- 21 Sellwood, J. A. & McGaugh, S. S. 2005, “The Compression of Dark Matter Halos by Baryonic Infall” *The Astrophysical Journal*, **634**, pp 70–76 (astro-ph/0507589)
- 22 Barnes, E. I., Sellwood, J. A. & Kosowsky, A. 2004, “Mass Models for Spiral Galaxies from 2-D Velocity Maps” *The Astronomical Journal*, **128**, pp 2724–2742 (astro-ph/0409259)
- 23 Shen, J. & Sellwood, J. A. 2004, “The Destruction of Bars by Central Mass Concentrations” *The Astrophysical Journal*, **604**, pp 614–631 (astro-ph/0310194)
- 24 Sellwood, J. A. 2003, “Bars and Dark Matter Halo Cores” *The Astrophysical Journal*, **587**, pp 638–648 (astro-ph/0210079)
- 25 Barnes, E. I. & Sellwood, J. A. 2003, “Uncertainties in Spiral Galaxy Projection Parameters”, *The Astronomical Journal*, **125**, pp 1164–1176 (astro-ph/0211225)
- 26 Sellwood, J. A. & Binney, J. J. 2002, “Radial Mixing in Galactic Disks” *Monthly Notices of the Royal Astronomical Society*, **336**, pp 785–796 (astro-ph/0203510)
- 27 Jacobs, V. & Sellwood, J. A. 2001, “Long-lived Lop-sided Modes of Annular Disks Orbiting a Central Mass” *The Astrophysical Journal Letters*, **555**, L25–L28 (astro-ph/0105286)
- 28 Weiner, B., Williams, T. B., van Gorkom, J. & Sellwood, J. A. 2001, “The Disk and Dark Halo Mass of the Barred Galaxy NGC 4123. I. Observations,” *The Astrophysical Journal*, **546**, pp 916–930 (astro-ph/0008204)

- 29 Weiner, B., Sellwood, J. A. & Williams, T. B. 2001, “The Disk and Dark Halo Mass of the Barred Galaxy NGC 4123. II. Fluid Dynamical Models,” *The Astrophysical Journal*, **546**, pp 931–951 (astro-ph/0008205)
- 30 Sellwood, J. A. & Evans, N. W. 2001, “The Stability of Disks in Cusped Potentials” *The Astrophysical Journal*, **546**, 176–188 (astro-ph/0006198)
- 31 Debattista, V. P. & Sellwood, J. A. 2000, “Constraints from Dynamical Friction on the Dark Matter Content of Barred Galaxies” *The Astrophysical Journal*, **543**, pp 704–721 (astro-ph/0006275)
- 32 Sellwood, J. A. 2000, “Is a Simple Collisionless Relic Dark Matter Particle Ruled Out?” *The Astrophysical Journal Letters*, **540**, L1–L4 (astro-ph/0004352)
- 33 Weiner, B. & Sellwood, J. A. 1999, “Properties of the Galactic Bar Implied by Gas Kinematics in the Inner Milky Way” *The Astrophysical Journal*, **524**, 112–128 (astro-ph/9904130)
- 34 Debattista, V. P. & Sellwood, J. A. 1999, “Warped Disks from Misaligned Angular Momenta” *The Astrophysical Journal Letters*, **513**, L107–L110 (astro-ph/9901153)
- 35 Sellwood, J. A. & Balbus, S. A. 1999, “Differential Rotation and Turbulence in Extended HI Disks”, *The Astrophysical Journal*, **511**, pp 660–665 (astro-ph/9806307)
- 36 Sellwood, J. A. & Moore, E. 1999, “On the Formation of Maximum Disk Galaxies and Massive Compact Objects” *The Astrophysical Journal*, **510**, pp 125–135 (astro-ph/9807010)
- 37 Sellwood, J. A., Nelson, R. D. & Tremaine, S. 1998, “Resonant Heating of Disks by Infalling Satellites” *The Astrophysical Journal*, **506**, pp 590–599 (astro-ph/9805145)
- 38 Debattista, V. P. & Sellwood, J. A. 1998, “Dynamical Friction and the Distribution of Dark Matter in Barred Galaxies” *The Astrophysical Journal Letters*, **493**, L5–L9 (astro-ph/9710039)
- 39 Sellwood, J. A. & Valluri, M. 1997, “Instabilities of a Family of Oblate Stellar Spheroids” *Monthly Notices of the Royal Astronomical Society*, **287**, pp 124–136 (astro-ph/9612069)
- 40 Sellwood, J. A. 1996, “Axisymmetric Bending Oscillations of Stellar Disks” *The Astrophysical Journal*, **473**, pp 733–745 (astro-ph/9604123)
- 41 Norman, C. A., Sellwood, J. A. & Hasan, H. 1996, “Bar Dissolution and Bulge Formation: an Example of Secular Dynamical Evolution in Galaxies” *The Astrophysical Journal*, **462**, pp 114–124
- 42 Earn, D. J. D. & Sellwood, J. A. 1995, “The Optimal  $N$ -body Method for Stability Studies of Galaxies” *The Astrophysical Journal*, **451**, pp 533–541 (astro-ph/9504047)
- 43 Merritt, D. & Sellwood, J. A. 1994, “Bending Instabilities in Stellar Systems” *The Astrophysical Journal*, **425**, pp 551–567
- 44 Sellwood, J. A. & Merritt, D. 1994, “Instabilities of Counter-rotating Stellar Disks” *The Astrophysical Journal*, **425**, pp 530–550

- 45 Sellwood, J. A. 1993, “Multiple Patterns in Spiral and Barred Galaxies” *Publications of the Astronomical Society of the Pacific*, **105**, pp 648–650
- 46 Raha, N., Sellwood, J. A., James, R. A. & Kahn, F. D. 1991, “A Dynamical Instability of Galactic Bars” *Nature*, **352**, pp 411–412
- 47 Sellwood, J. A. & Kahn, F. D. 1991, “Spiral Modes Driven by Narrow Features in Angular Momentum Density” *Monthly Notices of the Royal Astronomical Society*, **250**, pp 278–299
- 48 Sellwood, J. A. & Lin, D. N. C. 1989, “A Recurrent Spiral Instability Cycle in Self-gravitating Particle Discs” *Monthly Notices of the Royal Astronomical Society*, **240**, pp 991–1007
- 49 Sellwood, J. A. 1989, “Meta-stability in Stellar Discs” *Monthly Notices of the Royal Astronomical Society*, **238**, pp 115–131
- 50 Sellwood, J. A. & Sanders, R. H. 1988, “A Maximum Disc Model for the Galaxy” *Monthly Notices of the Royal Astronomical Society*, **233**, pp 611–620
- 51 Sellwood, J. A. & Sparke, L. S. 1988, “Pattern Speeds in Barred Spiral Galaxies” *Monthly Notices of the Royal Astronomical Society*, **231**, pp 25p–31p (*Short Communication*)
- 52 Sparke, L. S. & Sellwood, J. A. 1987, “Dissection of an  $N$ -body Bar” *Monthly Notices of the Royal Astronomical Society*, **225**, pp 653–675
- 53 Athanassoula, E. & Sellwood, J. A. 1986, “Bi-symmetric Instabilities of the Kuz’min/Toomre Disc” *Monthly Notices of the Royal Astronomical Society*, **221**, pp 213–232
- 54 Sellwood, J. A. & Athanassoula, E. 1986, “Unstable Modes from Galaxy Simulations” *Monthly Notices of the Royal Astronomical Society*, **221**, pp 195–212, with *Corrigendum* **229**, pp 707–708
- 55 Sellwood, J. A. 1985, “The Global Stability of Our Galaxy” *Monthly Notices of the Royal Astronomical Society*, **217**, pp 127–148
- 56 Carlberg, R. G. & Sellwood, J. A. 1985, “Dynamical Evolution of Galactic Discs” *The Astrophysical Journal*, **292**, pp 79–89
- 57 Inagaki, S., Nishida, M. & Sellwood, J. A. 1984, “A Check on the Non-linear Behaviour of Galaxy Simulations” *Monthly Notices of the Royal Astronomical Society*, **210**, pp 589–596
- 58 Sellwood, J. A. & Carlberg, R. G. 1984, “Spiral Instabilities Provoked by Accretion and Star Formation” *The Astrophysical Journal*, **282**, pp 61–74
- 59 Sellwood, J. A. 1983, “Quiet Starts for Galaxy Simulations” *Journal of Computational Physics*, **50**, pp 337–359
- 60 Sellwood, J. A. 1981, “Bar Instability and Rotation Curves” *Astronomy and Astrophysics*, **99**, pp 362–374
- 61 Sellwood, J. A. 1980, “Galaxy Models with Live Halos” *Astronomy and Astrophysics*, **89**, pp 296–307

- 62 Sellwood, J. A. & James, R. A. 1979, “Angular Momentum Redistribution by Spiral Waves in Computer Models of Disc Galaxies” *Monthly Notices of the Royal Astronomical Society*, **187**, pp 483–496
- 63 James, R. A. & Sellwood, J. A. 1978, “Galactic Models with Variable Spiral Structure” *Monthly Notices of the Royal Astronomical Society*, **182**, pp 331–344

### Significant conference papers

#### *Articles Appeared*

- 64 Sellwood, J. A. 2010, “New Developments in Spiral Structure Theory”, review presented to *Evolution of Planetary and Stellar Systems* a conference in honor of Doug Lin, held in Prato, Italy, June 21, 2009 (no proceedings) arXiv:1001:5430
- 65 Sellwood, J. A. 2009, “Dark Matter Density in Disk Galaxies”, review paper for *The Galaxy Disk in Cosmological Context*, IAU Symp. **254**, eds. J. Andersen, J. Bland-Hawthorn & B. Nordström, (Cambridge: Cambridge University Press), pp 73–84 (arXiv:0807:1973)
- 66 Sellwood, J. A. 2008, “Dynamical Evolution of Disk Galaxies”, in *Formation and Evolution of Galaxy Disks*, eds. J. G. Funes S. J. & E. M. Corsini, ASP Conference Series (San Francisco: Astronomical Society of the Pacific, **396**) pp 341–349 (arXiv:0803.1574)
- 67 Sellwood, J. A. & Debattista, V. P. 2007, “Anomalously Weak Dynamical Friction in Halos”, invited contribution to *Island Universes – Structure and Evolution of Disk Galaxies*, ed. R. S. de Jong (Dordrecht: Springer) pp 187–194 (astro-ph/0508036)
- 68 Sellwood, J. A. 2004, “What is the Evidence for Dark Matter?”, invited review for *Dark Matter in Galaxies* IAU Symposium **220**, eds. S. Ryder, D. J. Pisano, M. Walker, & K. C. Freeman (San Francisco: Astronomical Society of the Pacific), pp 27–39 (astro-ph/0401398)
- 69 Sellwood, J. A. & Shen, J. 2004, “The AGN-Disk Dynamics Connection”, invited contribution to *Carnegie Observatories Astrophysics Series, Vol. 1: Coevolution of Black Holes and Galaxies*, ed. L. C. Ho (Cambridge: Cambridge Univ. Press), pp 204–219 (astro-ph/0303611)
- 70 Sellwood, J. A. & Preto, M. 2002, “Scattering of Stars by Transient Spiral Waves” invited contribution to *Disks of Galaxies: Kinematics, Dynamics and Perturbations*, eds. E. Athanassoula & A. Bosma, ASP Conference Series **275** (San Francisco: Astronomical Society of the Pacific), pp 281–292 (astro-ph/0203512)
- 71 Sellwood, J. A. & Kosowsky, A. 2002, “Distinguishing Dark Matter from Modified Gravity” invited contribution to *The Dynamics, Structure and History of Galaxies*, eds. G. A. Da Costa & H. Jerjen, ASP Conference Series **273** (San Francisco: Astronomical Society of the Pacific), pp 243–254 (astro-ph/0109555)
- 72 Sellwood, J. A. 2002, “Ellipticals and Bars: Central Masses and Friction” invited contribution to *The Shapes of Galaxies and Their Halos*, ed. P. Natarajan (Singapore: World Scientific), pp 123–131 (astro-ph/0107353)

- 73 Sellwood, J. A. & Kosowsky, A. 2001, “Does Dark Matter Exist?” invited contribution to *Gas and Galaxy Evolution*, eds. J. E. Hibbard, M. P. Rupen & J. H. van Gorkom, ASP Conference Series **240** (San Francisco: Astronomical Society of the Pacific), pp 311–318 (astro-ph/0009074)
- 74 Sellwood, J. A. 2000, “Spiral Structure as a Recurrent Instability,” invited contribution to *Astrophysical Dynamics – in Commemoration of F. D. Kahn*, eds. D. Berry, D. Breitschwerdt, A. da Costa & J. E. Dyson, *Astrophysics and Space Science*, **272**, pp 31–43 (astro-ph/9909093)
- 75 Sellwood, J. A. 1999, “Most Real Bars are Not Made by the Bar Instability,” invited contribution to *Galaxy Dynamics from the Early Universe to the Present*, eds. F. Combes, G. Mamon & V. Charmandaris, ASP Conference Series **197** (San Francisco: Astronomical Society of the Pacific) pp 3–7 (astro-ph/9909489)
- 76 Sellwood, J. A. 1999, “Dynamical Constraints on Disk Masses” invited review in *Galaxy Dynamics*, eds. D. Merritt, J. A. Sellwood & M. Valluri, ASP Conference Series **182** (San Francisco: Astronomical Society of the Pacific) pp 351–364 (astro-ph/9903184)
- 77 Sellwood, J. A. 1999, “Stability and Evolution of Galactic Discs” invited review in *Astrophysical Discs – An EC Summer School*, eds. J. A. Sellwood & J. Goodman, ASP Conference Series **160** (San Francisco: Astronomical Society of the Pacific) pp 327–340 (astro-ph/9903185)
- 78 Sellwood, J. A. & Pryor, C. 1999, “Pulsation Modes of Spherical Stellar Systems.” In *Highlights of Astronomy* **11B**, ed. J. Andersen (Dordrecht: Kluwer Academic Publishers), pp 638–640
- 79 Sellwood, J. A. 1997, “Galaxy Dynamics by  $N$ -body Simulation” invited review in *Computational Astrophysics*, eds. D. A. Clarke & M. J. West, ASP Conference Series Volume **123** (San Francisco: Astronomical Society of the Pacific) pp 215–224 (astro-ph/9612087)
- 80 Sellwood, J. A. 1996, “Spiral Structure and the Stability of Stellar Disks” invited contribution in *Physics of Accretion Disks*, eds. S. Kato, S. Inagaki, S. Mineshige & J. Fukue (Amsterdam: OPA Gordon & Breach), pp 227–232
- 81 Sellwood, J. A. & Debattista, V. P. 1996, “Secular Evolution in Barred Galaxies” invited contribution in *Barred Galaxies and Circumnuclear Activity*, eds. Aa. Sandquist & P. O. Lindblad, Nobel Symposium **98** Lecture Notes in Physics, Volume **474** (Berlin: Springer-Verlag) pp 43–58 (astro-ph/9602030)
- 82 Sellwood, J. A. 1996, “The Axisymmetric Stability of the Milky Way” in *Unsolved Problems of the Milky Way*, eds. L. Blitz & P. Teuben, IAU Symposium **169** (Dordrecht: Kluwer) pp 31–37
- 83 Sellwood, J. A. 1996, “Dynamical Evolution of Disk Galaxies” invited contribution in *Spiral Galaxies in the Near IR*, ESO workshop, eds. D. Minniti & H.-W. Rix (Berlin: Springer) pp 166–173
- 84 Sellwood, J. A. 1996, “Bar Formation, Evolution and Destruction” invited review in *Barred Galaxies*, eds. R. Buta, B. G. Elmegreen, D. A. Crocker, IAU Colloq., ASP Conference Series **157** (San Francisco: Astronomical Society of the Pacific) pp 259–272 (astro-ph/9508119)

- 85 Sellwood, J. A. 1994, “Instabilities of Stellar Discs” (invited review) in *Numerical Simulations in Astrophysics*, eds. J. Franco, S. Lizano, L. Aguilar & E. Daltabuit (Cambridge University Press) pp 90–100
- 86 Gilbert, S. J. & Sellwood, J. A. 1994, “Modeling the Dynamics of the Interacting Galaxy Pair NGC 4676” in *Numerical Simulations in Astrophysics*, eds. J. Franco, S. Lizano, L. Aguilar & E. Daltabuit (Cambridge University Press) pp 131–134
- 87 Sellwood, J. A. 1994, “The Expected Phase Space Distribution of Disc Stars” in *Solar System and Galactic Astrometry*, eds. L. V. Morrison & G. F. Gilmore (Cambridge University Press) pp 156–164
- 88 Sellwood, J. A. 1993, “A Bar Model for the Galactic Bulge” in *Back to the Galaxy*, eds. S. S. Holt & F. Verter (New York: AIP press) pp 133–136
- 89 Sellwood, J. A. 1992, “Gas Flows in Spirals and Bars” invited review in *Interstellar Matter in Galaxies*, eds. J. Palouš, P. O. Lindblad & W. B. Burton (Cambridge University Press) pp 343–354
- 90 Sellwood, J. A. 1991, “Spiral Instabilities and Bars in  $N$ -body Simulations” invited review in *Dynamics of Disc Galaxies* ed. B. Sundelius (University of Gothenburg) pp 123–136
- 91 Sellwood, J. A. 1990, “Spiral Structure as a Recurrent Instability” invited review in *Galactic Models*, eds. J. R. Buchler, S. T. Gottesman & J. H. Hunter, Annals of the New York Academy of Sciences **596** pp 158–173
- 92 Sellwood, J. A. 1989, “Spiral Instabilities in  $N$ -body Simulations” review in *Dynamics of Astrophysical Discs*, ed. J. A. Sellwood (Cambridge University Press) pp 155–171 (arXiv:1011.4226)
- 93 Sellwood, J. A. 1989, “Instabilities of Stellar Discs” invited review in *Non-linear Phenomena in Vlasov Plasmas*, ed. F. Doveil, *Editions de Physique* (Les Ulis: Orsay) pp 87–107
- 94 Sellwood, J. A. 1988, “Internal Evolution of Spiral Galaxies” invited review in *Evolution of Galaxies*, ed. J. Palouš, 10th IAU European Regional Astronomy Meeting, Publications of the Astronomical Institute of the Czech Academy of Sciences **69** pp 249–254
- 95 Sellwood, J. A. 1986, “Disc Galaxy Dynamics on the Computer” invited review in *The Use of Supercomputers in Stellar Dynamics*, eds. P. Hut & S. McMillan, Lecture Notes in Physics **267** (Berlin: Springer-Verlag) pp 5–12
- 96 Sellwood, J. A. 1983, “Disc Stability” invited review in *Internal Kinematics and Dynamics of Galaxies*, ed. E. Athanassoula, IAU Symposium **100** (Dordrecht: Reidel) pp 197–202
- 97 Sellwood, J. A. 1983, “Disc Stability and Halo Mass” invited review in *The Origin and Evolution of Galaxies*, eds. B. J. T. Jones & J. E. Jones (Dordrecht: Reidel ASI series) pp 247–254

### Books edited

- 98 Merritt, D., Sellwood, J. A. & Valluri, M. 1999, “Galaxy Dynamics – A Rutgers Symposium,” ASP Conference Series, vol **182** (San Francisco: Astronomical Society of the Pacific)
- 99 Sellwood, J. A. & Goodman, J. 1999, “Astrophysical Discs – An EC Summer School,” ASP Conference Series, vol **160** (San Francisco: Astronomical Society of the Pacific)
- 100 Sellwood, J. A. 1989, “Dynamics of Astrophysical Discs” (Cambridge: Cambridge University Press)

## Invited Presentations at International Conferences

- 1 6th Sackler Conference at Harvard *Dynamics from the Galactic Center to the Milky Way Halo*, May 10-13, 2010. Invited lecture “Spiral Structure and Secular Evolution.”
- 2 *Origin and Evolution of Planetary and Stellar Systems: Dynamical Interactions with D. N. C. Lin*, Tuscany, Italy, June 21 – 26, 2009. Invited review “New Developments in Spiral Structure Theory”
- 3 *Unveiling the Mass: Extracting and Interpreting Galaxy Masses*, Kingston, Ontario, June 15 – 19, 2009. Invited paper: “Dealing with Non-Circular Motions in Galaxies”
- 4 *The Galaxy Disk in Cosmological Context* IAU Symposium **254**, Copenhagen, Denmark, June 9 – 13, 2008. Invited review “Secular Evolution of Galaxy Disks”
- 5 *Formation and Evolution of Galaxies*, Rome, Italy, October 1 – 5, 2007. Invited review “Dynamical Evolution of Disks”
- 6 *Dynamics of Galaxies*, St. Petersburg, Russia, August 6 – 10, 2007. Invited Review “Transient Spiral Waves”
- 7 *Astrophysical Probes of the Nature of Dark Matter*, UC Irvine, March 22 – 24, 2007. Invited paper “Dynamical Friction, Dark Halo Profiles, and Galactic Bars”
- 8 *Stars, Disks and Planets: The many worlds of John Papaloizou*, Paris, France, 11 – 13 June, 2007. Invited paper “Transient Waves in Disk Galaxies”
- 9 *Alternative Gravities & Dark Matter Workshop*, Edinburgh, Scotland, April 20 – 22, 2006. Invited presentation “Halo density: the greatest challenge to CDM”
- 10 *Island Universes: Structure and Evolution of Disk Galaxies*, Terschelling, The Netherlands, July 4 – 8, 2005. Invited talk “Disks, bars and halos”
- 11 *Dynamics of Galaxies: Baryons and Dark Matter*, U Nevada Las Vegas, March 10 – 12, 2005. Invited talk “Bar Friction, Halo Concentration and Numerical Issues”
- 12 *3rd Oxford-Princeton Workshop on Astrophysics and Cosmology*, Princeton, February 28th – March 2nd, 2005. Invited talk “The interaction of bars with DM halos”
- 13 *From first light to the Milky Way* ETH, Zurich, Switzerland, 18 – 22 August, 2003. Invited review: “Disk-halo Interactions in Galaxies”
- 14 *Dark Matter in Galaxies* IAU Symposium **220**, Sydney, Australia, 21 – 25 July, 2003. Invited review: “Does Dark Matter Exist?”
- 15 *Coevolution of Black Holes and Galaxies* Carnegie Observatories, Pasadena, 21 – 26 Oct, 2002. Invited review: “The AGN–Disk Dynamics Connection”
- 16 *Predictions of Cold Dark Matter Models on Small Scales: Current and Future Tests* U Chicago, July 31 – Aug 2, 2002. Invited contribution: “Dark Matter Halo Cores”

- 17 *Disks of Galaxies: Kinematics, Dynamics and Perturbations*, Puebla, Mexico, November 5 – 9, 2001. Invited review: “Scattering of Stars by Transient Spiral Waves”
- 18 *The Dynamics, Structure and History of Galaxies*, Dunk Island, Queensland, Australia, July 30 – August 2, 2001. Invited talk: “Mass Discrepancies: Dark Matter or Modified Gravity?”
- 19 *W M Keck Dark Matter Workshop* Princeton University, 31 May – 2 June, 2001. Review talk: “Maximum Disks and Their Implications”
- 20 *Yale Cosmology Workshop: The Shapes of Galaxies and Their Halos*, Yale University, 28–30 May, 2001. Invited review: “Ellipticals and Bars, Central Masses and Friction”
- 21 *20th Texas Symposium on Relativistic Astrophysics*, Austin, Texas, 10–15 December 2000. Invited talk: “Dark Matter Implications from the Dynamics of Galaxies”
- 22 *Gas and Galaxy Evolution*, Socorro, New Mexico, 21–24 May 2000. Invited talk: “Does Dark Matter Make Sense?”
- 23 *Galactic disks 99*, Heidelberg, Germany, 4–6 October 1999. Invited talk: “Dark Matter & Disk Stability”
- 24 Lorentz Centre workshop on galaxies, held in Leiden University, 5–16 July 1999. Invited paper: “Most Real Bars Are Not Made by the Bar Instability”
- 25 *Dynamics of Galaxies: from the Early Universe to the Present*, Paris, France, 9–13 July 1999. Invited paper: “Most Real Bars Are Not Made by the Bar Instability”
- 26 Division on Dynamical Astronomy of the American Astronomical Society, Estes Park, Colorado, April 28 – May 1, 1999. Invited paper: “Transient spiral patterns – support from HIPPARCOS”
- 27 *Astrophysical Dynamics*, Evora, Portugal, 14–16 April 1999. Invited review: “Spiral Structure”
- 28 *Galaxy Dynamics*, Rutgers University, August 8-12, 1998. Invited review “Dynamical Constraints on Disk Masses.”
- 29 *Astrophysical Discs*, Isaac Newton Institute, Cambridge, England, 22-26 June 1998. Invited review “Stability and Evolution of Disc Galaxies.”
- 30 IAU General Assembly, Kyoto, Japan, Aug 17-30 1997. Invited review “Dynamical Constraints on Disk Masses.”
- 31 *Computational Astrophysics*, 12th ‘Kingston Meeting’ on Theoretical Astrophysics, Halifax, Nova Scotia, 17-19 October 1996. Invited review “Galaxy dynamics by  $N$ -body simulation.”
- 32 *Structure and Evolution of Stellar Systems*, Petrozavodsk University, Russia, August 13-17 1995. Invited review “Numerical Studies of Stability” and also invited to deliver the final sum-up talk of the meeting.
- 33 *Basic Physics of Accretion Disks*, Kyoto University, Japan, 22-26 October 1995. Invited review “Spiral Structure and the Stability of Stellar Disks.”

- 34 *Barred Galaxies and Circumnuclear Activity*, Nobel Symposium **98**, Stockholm, 30 November – 3 December 1995. Invited review “Secular Evolution in Barred Galaxies.”
- 35 *Spiral Galaxies in the Near IR*, ESO workshop, Munich, 7-9 June 1995. Invited paper: “Dynamical Evolution of Disk Galaxies.”
- 36 *Barred Galaxies*, IAU colloquium **157**, Tuscaloosa, Alabama, 30 May–3 June 1995. Invited review “Bar Formation, Evolution and Destruction.”
- 37 184th Meeting of *American Astronomical Society* at University of Minnesota, Minneapolis, 29 May–2 June 1994. Invited review: “Bending Instabilities of Stellar Systems.”
- 38 *Three-Dimensional Dynamical Systems*, 9th Florida Workshop on Nonlinear Astronomy at the University of Florida, Gainesville. 28–30 October 1993. Invited review: “3-D Instabilities of Galaxies.”
- 39 *Numerical Simulations in Astrophysics*, Mexico City, 26–30 July 1993. Invited review: “Instabilities of Stellar Discs.”
- 40 *Detecting Resonances in Spiral Galaxies*, workshop at the Space Telescope Science Institute, Baltimore MD, 29–30 June 1992. Invited paper: “Multiple Patterns in Spiral and Barred Galaxies.”
- 41 *Dynamics of Disc Galaxies*, Varberg, Sweden, 25–30 May 1991. Invited review: “Spiral instabilities and bars in  $N$ -body simulations.”
- 42 *Interstellar Matter in Galaxies*, Prague, Czechoslovakia, 21–25 May 1991. Invited review: “Gas flows in spirals and bars.”
- 43 *Galaxy Models* held in Gainesville, Florida, 1–2 March 1989. Invited paper: “Spiral structure as a recurrent instability.”
- 44 *Dynamics of Astrophysical Discs* held in Manchester, England, 13–16 December 1988. Review: “Spiral instabilities in  $N$ -body simulations.”
- 45 *Non-linear Phenomena in Vlasov Plasmas* held in Cargèse, Corsica, 11–16 July 1988. Invited review: “Instabilities of stellar discs.”
- 46 *Giornate Lincee on Internal Dynamics of Galaxies* held in Rome 12-13 May 1988. Invited paper: “Dynamics of disk galaxies.”
- 47 *10th European Regional Astronomy Meeting of the IAU* held at Prague, 24–29 August 1987. Invited paper: “Internal evolution of spiral galaxies.”
- 48 *Workshop on Star Formation* held at University of California, Santa Cruz, 3–7 August 1987. Invited paper: “Self-gravitating instabilities in disks.”
- 49 Workshop on *The Use of Supercomputers in Stellar Dynamics*, Princeton, New Jersey, 2–4 June 1986. Invited review: “Disc galaxy dynamics on the computer.”
- 50 *Internal Kinematics and Dynamics of Galaxies*, IAU Symposium **100**, Bescancon, France, August 1982. Invited review: “Disc stability.”
- 51 *The Origin and Evolution of Galaxies*, Erice, Sicily, May 1981. Invited review: “Disc stability and halo mass.”