

CURRICULUM VITAE
James Reid IPSER, Ph.D.

ADDRESS

P.O. Box 118440
Dept. of Physics, New Physics Bldg.
University of Florida
Gainesville, FL 32611
Primary Phone: (352) 316-3398
UF Phone: (352) 392-0511
E-mail: ipser@phys.ufl.edu
jipser@gmail.com

PHYSICAL ADDRESS

2516 NW 22nd Drive
Gainesville, FL 32605

EDUCATION

B.S. (Physics) 1964 Loyola University, New Orleans
MS. (Physics) 1967 California Institute of Technology
Ph.D. (Physics) 1969 California Institute of Technology

PROFESSIONAL RECORD

Summer 1963	Lecturer in Physics	Loyola University
Summer 1964	Research Physicist	Shell Oil Company
1969-1970	Postdoctoral Fellow	California Institute of Technology
1970-1971	Postdoctoral Fellow	University of Washington
1971-1977	Assistant Professor	Astronomy and Astrophysics, U. Chicago
1974-1976	Lecturer	Adler Planetarium of the City of Chicago
Summer 1976	Visiting Associate	California Institute of Technology
1977-1981	Associate Professor with Tenure	Astronomy and Astrophysics, U. of Chicago
1981-2008	Professor	Physics and Astronomy, Univ. of Florida
1984-1991	Consultant	Livermore National Laboratory
1988-1990	Divisional Assoc. Editor	Physical Review D
1993-1999	Vice Associate Chair	Physics Dept., Univ. of Florida
1993-present	Consultant: Accident Reconstruction and Biomechanical Physics	
2009-present	Professor Emeritus	Physics Dept., Univ. of Florida

PROFESSIONAL SOCIETIES

Society of Accident Reconstructionists
International Society of Biomechanics
Accident Reconstruction Network
Society of Automotive Engineers
International Astronomical Union
Intl. Soc. on General Relativity and Gravitation

OTHER: Reconstructionist Membership, Soc. Accid. Recon., 1997;

PHY 5277, "Physics of Accident Reconstruction and Biomechanics" (graduate course created by Ipser); certified as part of Florida SUS Graduate Curriculum (2000).

CONTINUING EDUCATION

Arc Network Crash Conference
May 13-16, 2013
Las Vegas, NV

Arc Network Crash Conference
May 23-26, 2011
Las Vegas, NV

Arc Network Crash Conference
June 1-4, 2009
Las Vegas, NV

Arc Network Crash Conference
June 2-5, 2008
Las Vegas, NV

ARC Network Crash Conference
June 4-7, 2007
Las Vegas, NV

ARC Network Crash Conference
June 5-8, 2006
Las Vegas, NV

2005 Southeast Collision Reconstruction Conference
July 24-28, 2005
North Charleston, SC

ARC Network Crash Conference
June 21-25, 2004
Las Vegas, NV

ARC Network Crash Conference
June 9-12, 2003
Las Vegas, NV

CONTINUING EDUCATION (cont.)

5th Articulated Total Body Conference
April 27-28, 2000
Wichita State University

41st Stapp Car Crash Conference & Child Occupant Protection Symposium
November 12-14, 1997
Lake Buena Vista, FL

2nd Articulated Total Body Conference
April 28-29, 1997
University of Virginia

40th Stapp Car Crash Conference
November 4-6, 1996
Albuquerque, NM

Damask Seminar
Fall Semester, 1991
Physics Department
University of Florida

PUBLICATIONS

James R. Ipser

1. “Stability of Relativistic Star Clusters” (with K.S. Thorne), *Bull Amer. Phys. Soc.*, **12**, 1122 (1967).
2. “White-Dwarf and Neutron-Star Interpretations of Pulsing Radio Sources” (with K.S. Thorne), *Ap. J.*, **152**, L71 (1968).
3. “Relativistic, Spherically Symmetric Star Clusters. I. Stability Theory for Radial Perturbations” (with K.S. Thorne), *Ap. J.*, **154**, 251 (1968).
4. “Relativistic, Spherically Symmetric Star Clusters. II. Sufficient Conditions for Stability against Radial Perturbations”, *Ap. J.*, **156**, 509 (1969).
5. “Relativistic, Spherically Symmetric Star Clusters. III. Stability of Compact Isotropic Models”, *Ap. J.*, **158**, 17 (1969).
6. “Relativistic Star Clusters” (with E.D. Fackerell and K.S. Thorne), *Comments on Astrophysics and Space Physics*, **1**, 134 (1969).
7. “The Stability of Relativistic Spherically Symmetric Star Clusters”, Ph.D. thesis, California Institute of Technology (1969).
8. “On the Stability of Ultrarelativistic Stars”, *Astrophysics and Space Science*, **7**, 361 (1970).
9. “On the Study by Podurets of the Stability of Relativistic Star Clusters”, *Astronomicheskoe Zhurnal*, **47**, 452 (1970).
10. “Gravitational Radiation from Slowly Rotating, Fully Relativistic Stars”, *Ap. J.*, **166**, 175 (1971).
11. “Relativistic Star Clusters”, *Proceedings of Course 47 of Intl. School of Physics Enrico Fermi* (Academic Press, 1971).
12. “Electromagnetic Test Fields around a Kerr-Metric Black Hole”, *Phys. Rev. Letters*, **27**, 529 (1971).
13. “Electromagnetic Test Fields around a Rotating Black Hole” (with E.D. Fackerell), *Phys. Rev. D.*, **5**, 2455 (1972).
14. “Solution of the Scalar Wave Equation in a Kerr Background by Separation of Variables” (with D.R. Brill, P.L. Chrzanowski, G.M. Pereira and E.D. Fackerell), *Phys. Rev. D.*, **5**, 1913 (1972).
15. “Nonradial Pulsation of General-Relativistic Stellar Models. VI. Corrections” (with K.S. Thorne), *Ap. J.*, **181**, 181 (1973).
16. “The Stability of Scalar Perturbations of a Kerr-Metric Black Hole” (with S.L. Detweiler), *Ap. J.*, **185**, 675 (1973).
17. “A Variational Principle and a Stability Criterion for the Nonradial Modes of Pulsation of Stellar Models in General Relativity” (with S.L. Detweiler), *Ap. J.*, **185**, 685 (1973).
18. “On Using Entropy Arguments to Study the Evolution and Secular Stability of Spherical Stellar-Dynamical Systems”, *Ap. J.*, **193**, 463 (1974).
19. “On the Implications of the Nonexistence of Unstable Normal Modes for the Stability of Spherical Stellar Models to Nonradial Perturbations in General Relativity”, *Ap. J.*, **199**, 220 (1975).
20. “Dynamics of Relativistic Stellar Systems”, *Proceedings of International Astronomical Union Symposium No. 69* (Reidel, 1975).

21. "Rapidly Rotating Fluid Bodies in General Relativity" (with E.M. Butterworth), *Ap. J. Letters*, **200**, L103 (1975).
22. "Quark-Bag Equation of State and a Possible Third Regime of Stable Cold Stars" (with MS. Kislinger and RD. Morley), *Enrico Fermi Institute Report* NO. 75-38 (1975).
23. "On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The Numerical Method of Computing Structure and its Application to Uniformly Rotating Homogeneous Bodies" (with E.M. Butterworth), *4. J.*, **204**, 224 (1976).
24. "Accretion onto Pregalactic Black Holes" (with R.H. Price), *Ap. J.*, **216**, 578 (1977).
25. "A Numerical Method for Integrating the Stellar-Dynamical Fokker-Planck Equation in a Fixed Inhomogeneous Gravitational Background", *Ap. J.*, **218**, 846 (1977).
26. "The Distribution of Stars around a Massive Central Black Hole in a Spherical Stellar System. I. Results for Test Stars with a Unique Mass and Radius", *Ap. J.*, **222**, 976 (1978).
27. "A Connection between Stability and the Nonexistence of Unstable Proper Normal Modes for Certain Classes of Perturbations of Gravitating Systems" (with R. Semenzato), *Ap. J.*, **227**, 590 (1979).
28. "A Variational Principle for the Even-Parity Perturbations of Spherically Symmetric Star Clusters in General Relativity" (with R. Semenzato), *4. J.*, **229**, 1098 (1979).
29. "The Problem of Maximizing Functionals in Newtonian Stellar Dynamics, and Its Relation to Thermodynamic and Dynamical Stability" (with G. Horwitz), *Ap. J.*, **232**, 863 (1979).
30. "A Binding-Energy Criterion for the Dynamical Stability of Spherical Stellar Systems in General Relativity", *Ap. J.*, **238**, 1101 (1980).
31. "Stability Theory of the Orbit-Averaged Boltzmann Equation" (with H. Kandrup), *4. J.*, **241**, 1141 (1980).
32. "Odd-Parity Perturbations of Spherically Symmetric Star Clusters in General Relativity" (with R. Semenzato), *Ap. J.*, **250**, 362 (1981).
33. "On the Existence and Structure of Inhomogeneous Analogs of the Dedekind and Jacobi Ellipsoids" (with R. Managan), *Ap. J.*, **247**, 671 (1981).
34. "Synchrotron Radiation from Spherically Accreting Black Holes" (with R. Price), *Ap. J.*, **225**, 654 (1982).
35. "The Effect of Gravitational Radiation on the Secular Stability of a Rotating, Axisymmetric Galaxy" (with P. Vandervoort), *Ap. J.*, **256**, 497 (1982).
36. "Can Galactic Halos be Made of Axions?" (with P. Sikivie), *Phy. Rev. Lett.*, **50**, 925 (1983).
37. "Comptonization Effects in Spherical Accretion onto Black Holes" (with R. Price), *Ap. J.*, **67**, 371 (1983).
38. "On the Effects of Strong Encounters in Stellar Systems. I. A Basis for Treating Anisotropic Systems" (with R. Semenzato), *Ap. J.*, **271**, 294 (1983).
39. "On the Emission of Gravitational Radiation from Inhomogeneous Jacobi Configurations" (with R. Managan), *Ap. J.*, **282**, 287 (1984).
40. "Gravitationally Repulsive Domain Wall" (with P. Sikivie), *Phy. Rev. D*, **30**, 712 (1984).
41. "Models of Rapidly Rotating Neutron Stars" (with J. Friedman and L. Parker), *Nature*, **312**, 235 (1984).

PUBLICATIONS (continued):**James R. Ipser**

42. “Repulsive and Attractive Planar Walls in General Relativity”, *Phys. Rev. D*, **30**, 2452 (1984).
43. “An Eulerian Variational Principle and a Criterion for the Occurrence of Nonaxisymmetrical Neutral Modes Along Rotating Axisymmetric Sequences” (with R. Managan), *Ap. J.*, **292**, 517 (1985).
44. “Effects of Encounters between Disk Stars and a Galactic-halo Population” (with R. Semenzato), *Astron. Astrophys.*, **149**, 408 (1985).
45. “Rapidly Rotating Neutron Star Models” (with J. Friedman and L. Parker), *Ap. J.*, **304**, 115 (1986).
46. “On the Maximum Mass of a Uniformly Rotating Neutron Star” (with J. Friedman), *Ap. J.*, **314**, 594 (1987).
47. “Estimates of the Density of Dark Matter Near the Center of the Galaxy” (with P. Sikivie), *Phys. Rev. D*, **35**, 3695 (1987).
48. “Double-Bubble Spacetimes”, *Phys. Rev. D*, **36**, 1933 (1987).
49. “Turning-Point Method for Axisymmetric Stability of Rotating Relativistic Stars” (with J. Friedman and It Sorkin), *Ap. J.*, **325**, 722 (1988).
50. “Repulsive and Attractive Double-Bubble Spacetimes”, *Ann. New York Acad. Sci.*, **536**, 77 (1988).
51. “Oscillations and Stability of Rapidly Rotating Neutron Stars” (with L. Lindblom), *Phys. Rev. Lett.*, **62**, 2777 (1989).
52. “Implications of a Half-Millisecond Pulsar” (with J. Friedman and L. Parker), *Phys. Rev. Lett.*, **62**, 3015 (1989).
53. “The Oscillations of Rapidly Rotating Newtonian Stellar Models” (with L. Lindblom), *Ap. J.*, **355**, 226 (1990).
54. “Rapidly Rotating Neutron Stars: Implications of Half-Millisecond Periods”, *Ann. New York Acad. Sci.*, **617**, 18 (1990).
55. “Scattering of Ground Based Lasers by Aerosols in an Atmosphere with Enhanced Particle Content” (with L. Rosen), *Atmos. Environ.*, **25A**, 2643 (1991).
56. “The Oscillations of Rapidly Rotating Newtonian Stellar Models. II. Dissipative Effects” (with L. Lindblom), *Ap. J.*, **373**, 213 (1991).
57. “Nonradial Pulsations of Stellar Models in General Relativity” (with R. Price), *Phys. Rev. D*, **43**, 1768 (1991).
58. “Relation of Gauge Formalisms for Pulsations of General-Relativistic Stellar Models” (with R. Price), *Phys. Rev. D*, **44**, 307 (1991).
59. “On the Adiabatic Pulsations of Accretion Disks and Rotating Stars” (with L. Lindblom), *Ap. J.*, **379**, 285 (1991).
60. “A New Method for Treating Nonradial Pulsations in General Relativity”, *Ann. New York Acad. Sci.*, **631**, 110 (1991).
61. “On the Pulsations of Relativistic Accretion Disks and Rotating Stars: The Cowling Approximation” (with L. Lindblom), *Ap. J.*, **389**, 392 (1992).
62. “Rapidly Rotating Relativistic Stars” (with J. Friedman), *Phil. Trans. R. Soc. Lond. A*, **340**, 391 (1992).
63. “Phase-Space Structure of Cold Dark Matter Halos” (with P. Sikivie), *Physics Lett. B*, **291**, 288 (1992).

PUBLICATIONS (continued):**James R. Ipser**

64. “The *Oscillations* and Stability of Rotating Fluids: The Two-Potential Formalism” (with L. Lindblom), *Ann. New York Acad. Sci.*, **675**, 84 (1992).
65. “Rapidly Rotating Relativistic Stars” (with J. Friedman), in *Classical General Relativity*, Oxford Univ. Press, (ed. S. Chandrasekhar) (1993).
66. “Low-Frequency Modes and Nonbarotropic Effects in Pseudo-Newtonian Accretion Disks”, *Ap. J.*, **435**, 767 (1994).
67. “Low-Frequency Modes of Pulsation of Relativistic Accretion Disks”, *Ann. New York Acad. Sci.*, **773**, 266 (1995).
68. “Relativistic Accretion Disks: Low-Frequency Modes and Frame Dragging”, *Ap. J.*, **458**, 508 (1996).
69. “Low-Frequency Modes of Pulsation and QPO’s”, in *Proceedings of 7th M. Grossman Meeting on General Relativity*, World Scientific (1996).
70. “Relativistic Stellar Pulsations with Near-Zone Boundary Conditions” (with L. Lindblom and G. Mendell), *Phys. Rev. D*, **56**, 2118 (1997).
71. “Low-Frequency Oscillations of Relativistic Accretion Disks”, in *Relativistic Astrophysics*, Viewig, (ed. H. Riffert et al) (1998).
72. “The R-Modes of the Maclaurin Spheroids” (with L. Lindblom), *Phys. Rev. D*, **59**, 044009-1 (1999).
73. “On the Maximum Mass of Neutron Stars” (with C. Vuille), in *General Relativity and Relativistic Astrophysics*, (ed. C. Burgess and R. Myers) (2000).
74. “Einstein-Proca Theory and Naked Singularities” (with C. Vuille), *General Relativity and Gravitation* (2002).
75. “Review of the Atmospheric Propagation in the SPC Codes” (with P.S. Connell *et al.*), Lawrence Livermore National Laboratory Report UCID-21005 (declassified; original prepared in 1987).
76. “Atmospheric Propagation in the SPC Codes-an Update” (with A.E. Abey *et al.*), Lawrence Livermore National Laboratory Report UCID-21005 (declassified; original prepared in 1987).
77. “Solid Axle Tramp Response near the Natural Frequency and Its Effect on Vehicle Longitudinal Stability” (with D.A. Renfro and A. Roberts), Society of Automotive Engineers, Paper No. 2008-01-0583 08AC-86 (2008).
78. “Grasping the Full Picture: The Physics of Accident Reconstruction and Biomechanics,” in *The Role of Expert Witnesses in Accident Reconstruction Cases* (Thomson Reuters/Aspatore) (2009).

BOOKS EDITED**James R. Ipser**

Integrability in Dynamical Systems, with J.R. Buchler and C.A. Williams, New York Academy of Sciences, 1988.

Nonlinear Problems in Relativity and Cosmology, with J.R. Buchler and S.L. Detweiler, New York Academy of Sciences, 1991.

Three Dimensional Systems, with H.E. Kandrup and S.T. Gottesman, New York Academy of Sciences, 1995.