

CURRICULUM VITAE

Dieter R. Brill
Professor of Physics

Education

B. A., Princeton University, 1954
Ph.D., Princeton University, 1959

Academic Experience

1958-60 Instructor, Princeton University
1960-61 Exchange Fellow at University of Hamburg, Germany
1961- Summer Lecturer at International School "Enrico Fermi", Varenna, Italy
1961-62 Instructor, Yale University
1962-70 Associate Professor, Yale University
1970 Professor, University of Maryland
1972-Fall Humboldt-Foundation Senior Scientist at Max Planck Institute, Munich, Germany
1975-Spring Humboldt-Foundation Senior Scientist at Max Planck Institute, Munich, Germany
1977-Spring Visiting Professor, Dept. of Mathematics, Oregon State University, and Collège de France, Paris
1977-Fall Visiting Professor, University of Texas at Austin
1984-85 Humboldt-Foundation reinvasion awardee at Max Planck Institute, Munich, Germany
1992-Fall Visiting Professor, Max Planck Institute, Garching (FRG)
1993-Spring Affiliate Visitor, ITP, Santa Barbara.
1999-Spring Visiting Professor, Albert Einstein Institute, Potsdam and ITP, Santa Barbara.
2000-Summer Summer Lecturer, Asia Pacific Center for Theoretical Physics, Seoul (Korea)

Professional Activities

Fellow American Physical Society, Sigma XI.
Associate Editor, American Journal of Physics (until spring 1978).
Editorial Board, Einstein Centenary Volume of the GRG Society.
International Advisory Committee, second Marcel Grossmann meeting.
Local Organizing Committee, 10th Texas Symposium on Relativistic Astrophysics (1980).
Co-organizer, Aspen Summer Workshop (1981).
Co-organizer, Conference on Asymptotic Structure of Mass and Space-Time Geometry,

Oregon State University (1984).
Nominating Committee of the International Society for General Relativity and Gravitation (1983-1986).
Member, U.S. delegation for planning Instructional Conference of the University Grants Commission
at Indian Institute of Science, Bangalore India (1984).
Organizer and Chairman, Symposium on Kaluza-Klein Theories, 11th International Conference on General Relativity and Gravitation, Stockholm (1986).
Scientific Organizing Committee, International Conference on Gravitation and Cosmology, Goa, India (1987).
Member, Scientific Council, Maryland Academy of Sciences (1986); Vice Chairman (1989); Chairman (1991).
International Program Committee for conference "Mach's Principle", Tübingen (1993)
Member, Scientific Council, International Summer School on Modern Problems of Mathematical and Theoretical
Physics, Kazan, Russia (1995, 1997)
International Advisory Committee, Second International Conference on Quantum Field Theory and Gravity,
Tomsk State University (1997)
Nominating Committee of the International Society for General Relativity and Gravitation (1999-present)
Board of Directors, A. von Humboldt Foundation Alumni Association (2000-present)

Honors and Awards

Phi Beta Kappa

Exchange Fellow, University of Hamburg, 1960-61.
Humboldt-Foundation Senior Scientist Award, fall 1972 and spring 1975.
Recipient, G. Budé Medal, Collège de France, May 1977
A. Schild Memorial Lecturer, University of Texas, November 1977.
Humboldt-Foundation Senior Scientist Reinvitation, Nov. 1, 1984 - June 1, 1985.
Service Certificate from Science Center Associates, Maryland Academy of Sciences
Humboldt-Foundation visitor to Eastern German University (Jena), November 9-21, 1992.
"Key member" of research program *Small Scale Structure of Spacetime*, Institute for Theoretical Physics, Santa Barbara, January - July 1993.
Festschrift and international symposium for 60th birthday (*Directions in General Relativity, Vol. 2* published by Cambridge University Press)
Listed in Who's Who in America, American Men and Women of Science, and other biographical references.
Honorary member, Research Laboratory 'for Geometry, Dynamical Systems and Cosmology' (GEO.DY.SY.C.), Samos (Greece)

PUBLICATIONS since 1991

ARTICLES IN REFEREED JOURNALS

NEGATIVE ENERGY IN STRING THEORY (with G. Horowitz) Physics Letters B262 437 (1991)
SPLITTING OF AN EXTREMAL REISSNER-NORDSTRÖM THROAT VIA QUANTUM TUNNELING, Phys. Rev. D46 1560 (1992)
SPELL IT NORDSTRÖM (with T. Dray) General Relativity and Gravitation 15, 435 (1993)

GLOBAL STRUCTURE OF A BLACK-HOLE COSMOS AND ITS EXTREMES (with S. Hayward) *Classical and Quantum Gravity* 11, 359-370 (1994)

TESTING COSMIC CENSORSHIP WITH BLACK HOLE COLLISIONS (with G. Horowitz, D. Kastor, and J. Traschen) *Phys. Rev. D* 49, 840-852 (1994)

IS THE GRAVITATIONAL ACTION ADDITIVE? (with G. Hayward), *Phys. Rev. D* 50, 4914-4919 (1994)

MULTI-BLACK-HOLE GEOMETRIES IN (2+1)-DIMENSIONAL GRAVITY, *Phys. Rev. D* 53 R4133-R4137 (1996)

MULTI-BLACK-HOLES IN 3D AND 4D ANTI-DE SITTER SPACE, *Helv. Phys. Acta* 69 249-252 (1996)

THERMODYNAMICS OF (3+1) DIMENSIONAL BLACK HOLES WITH TOROIDAL OR HIGHER GENUS HORIZONS (with J. Louko and P. Peldan), *Phys. Rev. D* 56, 3600-3610 (1997)

GRAVITATIONAL GEONS REVISITED (with P. Anderson), *Phys. Rev. D* 56, 4824-4833 (1997)

BLACK HOLES AND WORMHOLES IN 2+1 DIMENSIONS (with Åminneborg, Bengtsson, Holst and Peldan), *Class. Quant. Grav.* 15, 627-644 (1998)

LIGHT BENDING AND PERIHELION PRECESSION: A UNIFIED APPROACH (with D. Goel), *American J. Phys.* 67, 316-319 (1999)

(2+1)-DIMENSIONAL BLACK HOLES WITH MOMENTUM AND ANGULAR MOMENTUM, *Annalen Phys.* 9, 217-226, 2000

BOOKS or contributions to edited books

EUCLIDEAN MAXWELL-EINSTEIN THEORY, p. 221-228 in *Topics in Quantum Gravity and Beyond*, Freydon Mansouri and Joseph J. Scanio, editors, World Scientific Pub. Co, Singapore 1993.

A PICTORIAL HISTORY OF SOME GRAVITATIONAL INSTANTONS (with K. Pirk), in *Festschrift for Ch. Misner, B. Hu, M. Ryan, C. Vishveshwara*, editors, Cambridge University Press 1993

DISCUSSION CONTRIBUTIONS in *Wissenschaft und Medien in gemeinsamer Verantwortung vor der Öffentlichkeit* (5. Bremer Universitäts-Gespräch), V. Preuss, editor, Bremen 1993, pp. 92-93, 103-104

COMMENTS ON INITIAL VALUE FORMULATION, p 208-213, and COMMENTS ON DRAGGING EFFECTS, p 332-338 in *Mach's Principle: From Newton's Bucket to Quantum Gravity, Einstein Studies Vol 6* J. Barbour and H. Pfister, editors, Birkhäuser Boston 1995

BLACK HOLE COLLISIONS, ANALYTIC CONTINUATION, AND COSMIC CENSORSHIP in *Global Structure and Evolution in General Relativity*, S. Cotsakis and G. Gibbons, editors, Springer 1995

ASPECTS OF ANALYTICITY, (GR-QC/9507019) to appear in *Lecture Notes on Theoretical and Mathematical Physics, Vol 1*, A. Aminova and D. Brill, editors

ASPEKTY ANALITICHNOSTI (Russian version of above paper), pp 137-193 in *Lektsionnye zametki po teoreticheskoi i matematicheskoi fizike, Tom 1*, A. Aminova, editor, Kazan 1996

GEOMETRY OF BLACK HOLES AND MULTI-BLACK-HOLES, pp 6-23 in *Singularities, Black Holes and Cosmic Censorship*, Pankaj S. Joshi, editor, Inter-University Centre for Astronomy and Astrophysics 1996 (ISBN 81-900378-2-X)

THE CAVENDISH EXPERIMENT IN GENERAL RELATIVITY, in *On Einstein's path: Essays in Honor of Engelbert Schucking*, Alex Harvey, editor, Springer-Verlag 1998

INSTANTONS FOR BLACK HOLE PAIR PRODUCTION, in *The Universe: Visions and Perspectives*, N. Dadhich and A. Kembhavi, editors Kluwer Academic Publishers 2000

BLACK HOLES AND WORMHOLES IN (2+1)-DIMENSIONS in *Mathematical and Quantum Aspects of Relativity and Cosmology*, S. Cotsakis and G. Gibbons, editors, Springer Lecture Notes in Physics Vol 537, Springer 2000

REVIEW

- MACH'S PRINCIPLE: FROM NEWTON'S BUCKET TO QUANTUM GRAVITY, conference report in "Matters of Gravity" No. 3, 31-32 (Spring 1994)
FIRST SAMOS MEETING ON COSMOLOGY, GEOMETRY AND RELATIVITY (with S. Cotsakis), conference report in "Matters of Gravity" No. 5, 19 (Spring 1995)
VOLGA-7 '95 (with A. Aminova), conference report in "Matters of Gravity" No. 7, 27 (Spring 1996)
JOURNÉES RELATIVISTES '96 (with M. Heusler and G. Lavrelashvili), conference report in "Matters of Gravity" No. 9, (Spring 1997)

TALKS PRESENTED

i) Invited Talks

- NEGATIVE ENERGY IN STRING THEORY, invited talk given at
Theoretical Physics Seminar, Yale University, April 9, 1991
Theory Seminar, Tufts University, April 12, 1991
Relativity Seminar, New York University, May 21, 1991
VACUUM DECAY AND NEGATIVE ENERGY STATES IN SPACETIME THEORIES,
Theoretical Seminar, University of Massachusetts, April 11, 1991
VISUAL PERCEPTION AND OPTICAL ILLUSIONS, invited lecture, Springer Verlag, New York,
May 22, 1991
NEGATIVE ENERGIE IN DER STRING-THEORIE, invited talk given at
Theoretical Seminar, University of Clausthal-Zellerfeld, June 13, 1991
Theoretical Seminar, Akademie der Wissenschaften, Potsdam, June 18, 1991
Theoretical Seminar, University of Berne, June 27, 1991
Relativity Seminar, Max Planck Institute, Garching, July 9, 1991
DER ENERGIEBEGRIFF IN RAUMZEITEN MIT HÖHEREN DIMENSIONEN, Mathematical
Colloquium, Free University of Berlin, June 20, 1991
ORIGIN OF THE UNIVERSE, guest lecture, HONR328B, September 17, 1991
MITOSIS OF BLACK HOLES, Physics Colloquium, Syracuse University, February 13, 1992
CURRENT RESEARCH IN RELATIVITY, relativity seminar, New York University, February 14,
1992
WORMHOLE MITOSIS, relativity seminar, UMCP, February 28, 1992
WHAT EVER HAPPENED TO WHEELER WORMHOLES, T-6 seminar, Los Alamos, April 8,
1992
BLACK HOLES, WORMHOLES, AND QUANTUM GRAVITY, Special Seminar, Center for
Advanced Studies, University of New Mexico, April 9, 1992
WORMHOLE FLUCTUATIONS, invited workshop (D1) presentation at 13th International
Conference on General Relativity and Gravitation, Cordoba, Argentina, July 3, 1992
SPLITTING OF AN EXTREMAL REISSNER-NORDSTRÖM THROAT, seminar at Aspen
workshop on black holes, August 27, 1992
PRODUCTION OF BERTOTTI-ROBINSON UNIVERSES BY QUANTUM TUNNELING?
seminar at Max Planck Institut, Garching, September 29, 1992
WURMLÖCHER UND QUANTENGEOMETRIE, Colloquium, Physics Department, University of
Tübingen, October 21, 1992
RIEMANN'SCHE METHODEN IN DER AR, theoretical seminar, Physics Department, University
of Tübingen, October 22, 1992

WHAT EVER HAPPENED TO WHEELER WORMHOLES? Seminar matematicke fyziky, University of Prague, November 3, 1992

WAS WURDE AUS WHEELER'S VISION WANDELNDER WURMLÖCHER? Theoretical seminar, F. Schiller University, Jena, November 17, 1992

TOPOLOGY CHANGE IN GENERAL RELATIVITY, Seminar, Department of Mathematics, Bilkent University (Turkey), Dec. 1, 1992

WHAT EVER HAPPENED TO WHEELER'S WORMHOLES? Colloquium, Department of Mathematics, Bilkent University, December 3, 1992

GLOBAL STRUCTURE OF KASTOR-TRASCHEN SPACETIMES, Lunchtime seminar, Institute for Theoretical Physics, Santa Barbara, February 24, 1993

GLOBAL STRUCTURE OF A BLACK-HOLE COSMOS, Theoretical Physics Seminar, University of British Columbia, March 26, 1993

COLLIDING BLACK HOLE COSMOGRAPHY, invited plenary lecture, Symposium on Directions in General Relativity, University of Maryland, May, 1993

REPLY TO PFISTER; REPLY TO ISENBERG, invited papers, conference "Mach's Principle", Tübingen University, July 27 and 28, 1993

EXPANDING UNIVERSES, BLACK HOLES, AND COSMIC CENSORSHIP, Colloquium given at,
 Catholic University, Washington, DC, November 18, 1993
 Virginia Commonwealth University, Richmond, VA, February 25, 1994 (1 hour)

EUKLIDISCHE METHODEN IN DER ALLGEMEINEN RELATIVITÄTSTHEORIE, invited lecture, International Workshop zu Fragen der Theoretischen Physik, Würzburg, July 3, 1994 (1 hour)

TESTING COSMIC CENSORSHIP WITH BLACK HOLE COLLISIONS, invited lecture, ESI Conference on Mathematical Relativity, Vienna, July 28, 1994 (1 hour)

BLACK HOLE COLLISIONS, ANALYTIC CONTINUATION, AND COSMIC CENSORSHIP, Invited plenary lectures, First Samos Meeting on Cosmology Geometry and Relativity, Karlovassi (Greece) September 5, 1994 (2 hours)

ASPECTS OF ANALYTICITY, plenary lectures, International Summer School on Recent Problems in Theoretical and Mathematical Physics, Kazan (Russia), June 1995 (3 hours)

GEOMETRY OF BLACK HOLES AND MULTI-BLACK-HOLES IN 2+1 DIMENSIONS, invited plenary talk at the special session on the Raychaudhuri equation, International Conference on Gravitation and Cosmology, Pune (India) December 16, 1995 (1½ hours)

COSMIC CENSORSHIP AND BLACK HOLES, invited talk at Workshop on Gravitational Collapse and Cosmic Censorship, Pune (India), December 21 1995 (45 minutes)

BLACK HOLES IN FLATLAND, Colloquium at Department of Physics, U. of Mass. (Amherst), March 27 1996 (1 hour)

MULTI-BLACK-HOLE GEOMETRIES IN 2+1 DIMENSIONAL GRAVITY, invited talks with this title at:
 Relativity Seminar, Tufts University (Boston), March 29 1996 (1 hour)
 Relativity Seminar, Brown University (Providence, RI) April 1, 1996 (1 hour)
 Seminar, University of Kaiserslautern (FRG) May 31, 1996 (1 hour)
 Seminar, University of Stockholm, June 10, 1996 (1½ hours)

NEUE ARTEN SCHWARZER LÖCHER IN RÄUMEN KONSTANTER NEGATIVER KRÜMMUNG, Colloquium with this title at
 Department of Mathematics, University of Essen (FRG), June 5, 1996 (1 hour)
 Department of Physics, University of Tübingen (FRG), October 14, 1996 (1 hour)
 Max Planck Institute, Jena (FRG), October 16, 1996 (1 hour)

GRAVITY AND BLACK HOLES IN FLATLAND, Colloquium, Department of Physics, UMBC, October 29, 1997 (1 hour)

BLACK HOLES and WORMHOLES in 2+1 DIMENSION, plenary lecture, 2nd Samos Meeting On Cosmology Geometry And Relativity, Samos (Greece) August 31, 1998 (1 hour)
 BLACK HOLES IN 2+1 D EINSTEIN SPACES, student-faculty colloquium, Department of Mathematics, UMCP, October 12, 1998 (1 hour)
 INSTANTONS FOR BLACK HOLE PAIR PRODUCTION, seminar, Center for Gravitation, UNAM, December 10, 1998
 BLACK HOLES BY CUT-AND-ASSEMBLE, lecture in Ciclo de Conferencias de Otoño Física y Geometría, UNAM, December 14, 1998 (1 hour)
 2+1 - DIMENSIONAL GRAVITY, seminar, Institute for Theoretical Physics, Santa Barbara, May 1999 (1 hour)
 2+1 - DIMENSIONAL BLACK HOLES WITH MOMENTUM AND ANGULAR MOMENTUM, plenary talk at Journées Relativistes 99, Weimar (Germany), September 1999 (1 hour)
 GRAVITY IN FLATLAND, special high energy physics seminar, Department of Physics, University of Rochester, October 22, 1999 (1 hour)
 2+1 DIMENSIONAL SPACETIMES AND THEIR BLACK HOLES, lectures at Asia Pacific Center for Theoretical Physics, Seoul, Korea, July 31-August 2, 2000 (4½ hours)

ii) Contributed Talks

THE SEQUENCE OF THREE-GEOMETRIES THAT ARE TRAVERSED DURING TUNNELLING, Paper A12 3, Bull. Am. Phys. Soc. 36, No. 4, 1232 (1991)
 TOPOLOGY CHANGE AND THE WHEELER-DEWITT EQUATION, Midwest Relativity Meeting, Oakland University, Rochester, MI, November 6, 1993
 IS THE GRAVITATIONAL ACTION ADDITIVE? Teatime talk, University of Maryland, February 16, 1994 (1 hour)
 STATIC PARALLEL PLATE SOLUTIONS IN GENERAL RELATIVITY, General Relativity Theory Tea & Discussion, University of Maryland, February 1, 1995 (2 hours)
 2+1 DIMENSIONAL BLACK HOLE GEOMETRIES, Fifth Annual Midwest Relativity Conference, Milwaukee, November 10, 1995
 POSTER on 2+1-dimensional gravity, Maryland-Goddard interaction day, November 16, 1995
 MULTI-BLACK-HOLE SOLUTIONS IN 2+1 D, General Relativity Theory Tea & Discussion, University of Maryland, fall, 1995
 CONSTRUCTING BLACK HOLES WITH STEREOSCOPIC PROJECTIONS,¹ General Relativity Theory Tea & Discussion, University of Maryland, March 6, 1996
 MULTI-BLACK-HOLES IN 3D AND 4D ANTI-DE SITTER SPACE, workshop paper at Journées Relativistes, Ascona (Switzerland), May 27 1996
 THE REMARKABLE VARIETY OF ANTI-DE SITTER BLACK HOLES, General Relativity Theory Tea & Discussion, University of Maryland, September 27, 1996
 INFORMAL REPORT OF THE JOURNEES RELATIVISTES CONFERENCE, Gravitation Theory Seminar, University of Maryland October 1 1999 (1 hour)

EDITORSHIPS

Editor (with A. Aminova) of *Lecture Notes on Theoretical and Mathematical Physics, Vol 1*

Footnotes:

¹ the title as announced; it should have been ... with stereographic projection