SMOLLER, JOEL A. PROFESSOR

EDUCATION:

B.S. Brooklyn College, 1957
M.S. Ohio University, 1958
Ph.D Purdue University, 1963

EMPLOYMENT:

University of Michigan,
Instructor, 1963-65
Assistant Professor, 1965-68
Associate Professor, 1968-70
Professor, 1970-

VISITING APPOINTMENTS:

New York University, Courant Institute of Mathematical Sciences, Visiting Member, 1964-65; 1969-70
University of Wisconsin and University of Paris, Visiting Professor, 1972-73
École Normale Supérieure, Paris, Visiting Professor, Winter 1985

SABBATICALS AND LEAVES:

Ann Arbor, Fall 1973
University of Warwick, Mathematics Institute, 1980-81
Harvard University, 1988-89
University of California at Davis, 1/96 – 6/96

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Guggenheim Fellowship, 1980-81
Margaret and Herman Sokol Award (University of Michigan) 1992
Lamberto Cesari Chair, 1998
Excellence in Research Award, 1996

1965

Translation-invariant functionals on functions defined in Euclidean spaces, Trans. Amer. Math. Soc., 114, 446-467.

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1966

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1967

Uniqueness and stability theorem for the generalized solution of the initial-value problem for a class of quasi-linear equations in several space variables (with E. Conway), Arch. Rational Mech. Anal., 23, 399-408.

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1968

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1969

On the solution of the Riemann problem with general step data for an extended class of hyperbolic systems, Michigan Math. J., 16, 1-10.

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1974

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1976

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1978

Qualitative theory of the FitzHugh-Nagumo equations (with J. Rauch), Advances in Math., 27, 12-44.

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1979

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1980

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1982

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1985

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1986

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1990

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Shock-Wave Solutions in Closed Form, and the Oppenheimer-Snyder Limit in General Relativity (with J.B. Temple), SIAM Journal of Applied Math, vol. 58, No. 1, 15-33.

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1999

Particle-Like Solutions of the Einstein-Dirac Equations (with F. Finster and S.-T. Yau), Physical Review D, Vol. 59, 104020.

The Coupling of Gravity to Spin and Electromagnetism (with F. Finster and S.-T. Yau), Modern Physics Letters A, Vol. 14, No. 16, 1053-1057. (Honorable Mention (4^{th} Prize) in the Gravity Research Foundation Contest.)

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Papers to appear or accepted:

The Einstein-Dirac-Maxwell Equations – Black Hole Solutions, (with F. Finster and S.-T. Yau), *Proceedings of the Beijing Conference (1998),* Institute of Mathematical Sciences Conference on Differential Equations and Numerical Analysis.

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Book: SHOCK WAVES AND THE INITIAL-VALUE PROBLEM IN GENERAL RELATIVITY (with J. Groah and B. Temple), Springer-Verlag , (Grundlehren Series), (300 pages, approx.)

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The Long-Time Dynamics of Dirac Particles in the Kerr-Newman Black-Hole Geometry (with F. Finster, N. Kamran, and S.-T. Yau), *Annals of Mathematics.*

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Cosmology, Black Holes and Shock Waves Beyond the Hubble Length, (with B. Temple), *SIAM J. of Math. Anal.*