Record 1 of 50
Title: The Euler equations of compressible fluid flow
Author(s): Christodoulou, D (Christodoulou, Demetrios)
ISSN: 0273-0979

Record 2 of 50
Title: On the motion of the free surface of a liquid
Author(s): Christodoulou, D (Christodoulou, D); Lindblad, H (Lindblad, H)
ISSN: 0010-3640

Record 3 of 50
Title: On the global initial value problem and the issue of singularities
Author(s): Christodoulou, D (Christodoulou, D)
Source: CLASSICAL AND QUANTUM GRAVITY Volume: 16 Issue: 12A Special Issue: SI Pages: A23-A35 DOI: 10.1088/0264-9381/16/12A/302 Published: DEC 1999
Abstract: In the first part of the paper we discuss what is known at present about the global initial value problem for the vacuum Einstein equations with general asymptotically flat initial data. We then give precise formulations of cosmic censorship conjectures. We also point out analogies with fluid dynamics and discuss possibilities suggested by these analogies. In the second part I discuss my work on the spherically symmetric Einstein equations with a real massless scalar field as the material model. I give an outline of the approach which has led to the proof of the conjectures in this context.
ISSN: 0264-9381

Record 4 of 50
Title: The instability of naked singularities in the gravitational collapse of a scalar field
Author(s): Christodoulou, D (Christodoulou, D)
ISSN: 0003-486X

Record 5 of 50
Title: The stability of Minkowski space-time
Author(s): Christodoulou, D (Christodoulou, D)
Source: JOURNAL OF DIFFERENTIAL GEOMETRY Pages: 365-385 Supplement: 6 Published: 1999
ISSN: 0022-040X

Record 6 of 50
Title: On the geometry and dynamics of crystalline continua
Author(s): Christodoulou, D (Christodoulou, D)
Source: ANNALES DE L INSTITUT HENRI POINCARE-PHYSIQUE THEORIQUE Volume: 69 Issue: 3 Pages: 335-358 Published: SEP 1998
Abstract: We introduce in continuum mechanics the concept of a material manifold. To describe, in the continuum limit, a crystalline solid containing an arbitrary distribution of dislocations, we endow the material manifold with a structure a k in to that of a Lie group. Starting with a state function defined on the space of local thermodynamic equilibrium states, we formulate the dynamics of crystalline continua in accordance with the least action principle, within the framework of general relativity, in terms of a mapping of the space time manifold into the material manifold. We include in our formulation electromagnetic effects. (C) Elsevier, Paris.
Record 7 of 50
Title: Self-gravitating relativistic fluids: The formation of a free phase boundary in the phase transition from soft to hard
Author(s): Christodoulou, D (Christodoulou, D)
Source: ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS Volume: 134 Issue: 2 Pages: 97-154 DOI: 10.1007/BF00379551 Published: 1996
ISSN: 0003-9527

Record 8 of 50
Title: Self-gravitating relativistic fluids: The continuation and termination of a free phase boundary
Author(s): Christodoulou, D (Christodoulou, D)
Source: ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS Volume: 133 Issue: 4 Pages: 333-398 DOI: 10.1007/BF00375147 Published: 1996
ISSN: 0003-9527

Record 9 of 50
Title: SELF-GRAVITATING RELATIVISTIC FLUIDS - A 2-PHASE MODEL
Author(s): CHRISTODOULO, D (CHRISTODOULO, D)
Source: ARCHIVE FOR RATIONAL MECHANICS AND ANALYSIS Volume: 130 Issue: 4 Pages: 343-400 DOI: 10.1007/BF00375144 Published: 1995
ISSN: 0003-9527

Record 10 of 50
Title: EXAMPLES OF NAKED SINGULARITY FORMATION IN THE GRAVITATIONAL COLLAPSE OF A SCALAR FIELD
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D)
ISSN: 0003-486X

Record 11 of 50
Title: BOUNDED VARIATION SOLUTIONS OF THE SPHERICALLY SYMMETRICAL EINSTEIN-SCALAR FIELD-EQUATIONS
Author(s): CHRISTODOULO, D (CHRISTODOULO, D)
Source: COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS Volume: 46 Issue: 8 Pages: 1131-1220 DOI: 10.1002/cpa.3160460803 Published: SEP 1993
ISSN: 0010-3640

Record 12 of 50
Title: ON THE REGULARITY OF SPHERICALLY SYMMETRICAL WAVE MAPS
Author(s): CHRISTODOULO, D (CHRISTODOULO, D); TAHVILDARZADEH, AS (TAHVILDARZADEH, AS)
Source: COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS Volume: 46 Issue: 7 Pages: 1041-1091 DOI: 10.1002/cpa.3160460705 Published: AUG 1993
Abstract: Wave maps are critical points $U: M \rightarrow N$ of the Lagrangian $L[U] = \int_\mathcal{M} \sqrt{\det g} \, \text{d}U$, where $M$ is an Einsteinian manifold and $N$ a Riemannian one. For the case $M = R^2,1$ and $U$ a spherically symmetric map, it is shown that the solution to the Cauchy problem for $U$ with smooth initial data of arbitrary size is smooth for all time, provided the target manifold $N$ satisfies the two conditions that: (1) it is either compact or there exists an orthonormal frame of smooth vectorfields on $N$ whose structure functions are bounded; and (2) there are two constants $c$ and $C$ such that the smallest eigenvalue $\lambda$ and the largest eigenvalue $\Lambda$ of the second fundamental form $k(\nabla U)$ of any geodesic sphere $\Sigma(p, s)$ of radius $s$ centered at $p$ is-an-element-of $N$ satisfy $\lambda \geq c$ and $\Lambda \leq C(1 + s)$.
This is proved by first analyzing the energy-momentum tensor and using the second condition to show that near the first possible singularity, the energy of the solution cannot concentrate, and hence is small. One then proves that for targets satisfying the first condition, initial data of small energy imply global regularity of the solution. (C) 1993 John Wiley & Sons, Inc.
ISSN: 0010-3640
Record 13 of 50
Title: ON THE ASYMPTOTIC-BEHAVIOR OF SPHERICALLY SYMMETRICAL WAVE MAPS
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D); TAHVILDARZADEH, AS (TAHVILDARZADEH, AS)
Source: DUKE MATHEMATICAL JOURNAL Volume: 71 Issue: 1 Pages: 31-69 DOI:
10.1215/S0012-7094-93-07103-7 Published: JUL 1993
ISSN: 0012-7094

Record 14 of 50
Title: NONLINEAR NATURE OF GRAVITATION AND GRAVITATIONAL-WAVE EXPERIMENTS
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D)
Source: PHYSICAL REVIEW LETTERS Volume: 67 Issue: 12 Pages: 1486-1489 DOI:
10.1103/PhysRevLett.67.1486 Published: SEP 16 1991
Abstract: It is shown that gravitational waves from astronomical sources have a nonlinear effect on laser interferometer detectors on Earth, an effect which has hitherto been neglected, but which is of the same order of magnitude as the linear effects. The signature of the nonlinear effect is a permanent displacement of test masses after the passage of a wave train.
ISSN: 0031-9007

Record 15 of 50
Title: THE FORMATION OF BLACK-HOLES AND SINGULARITIES IN SPHERICALLY SYMMETRICAL GRAVITATIONAL COLLAPSE
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D)
Source: COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS Volume: 44 Issue: 3 Pages: 339-373 DOI:
10.1002/cpa.3160440305 Published: APR 1991
ISSN: 0010-3640

Record 16 of 50
Title: ASYMPTOTIC PROPERTIES OF LINEAR FIELD-EQUATIONS IN MINKOWSKI SPACE
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D); KLAINERMAN, S (KLAINERMAN, S)
Source: COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS Volume: 43 Issue: 2 Pages: 137-199 DOI:
10.1002/cpa.3160430202 Published: MAR 1990
ISSN: 0010-3640

Record 17 of 50
Title: THE NONLINEAR STABILITY OF THE MINKOWSKI METRIC IN GENERAL-RELATIVITY
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D); KLAINERMAN, S (KLAINERMAN, S)
Source: LECTURE NOTES IN MATHEMATICS Volume: 1402 Pages: 128-145 Published: 1989
ISSN: 0075-8434

Record 18 of 50
Title: THE STRUCTURE AND UNIQUENESS OF GENERALIZED SOLUTIONS OF THE SPHERICALLY SYMMETRICAL EINSTEIN-SCALAR EQUATIONS
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D)
Source: COMMUNICATIONS IN MATHEMATICAL PHYSICS Volume: 109 Issue: 4 Pages: 591-611 DOI:
10.1007/BF01208959 Published: 1987
ISSN: 0010-3616

Record 19 of 50
Title: A MATHEMATICAL-THEORY OF GRAVITATIONAL COLLAPSE
Author(s): CHRISTODOULOU, D (CHRISTODOULOU, D)
Source: COMMUNICATIONS IN MATHEMATICAL PHYSICS Volume: 109 Issue: 4 Pages: 613-647 DOI:
10.1007/BF01208960 Published: 1987
ISSN: 0010-3616
Record 1 of 2
Title: REVERSIBLE AND IRREVERSIBLE TRANSFORMATIONS IN BLACK-HOLE PHYSICS
Author(s): CHRISTOD.D (CHRISTOD.D)
Source: PHYSICAL REVIEW LETTERS Volume: 25 Issue: 22 Pages: 1596-& DOI: 10.1103/PhysRevLett.25.1596 Published: 1970
ISSN: 0031-9007

Record 2 of 2
Title: A LIMIT ON CHANGE OF CHARGE AND MASS OF BLACK HOLE
Author(s): CHRISTOD.D (CHRISTOD.D)
Source: BULLETIN OF THE AMERICAN PHYSICAL SOCIETY Volume: 15 Issue: 4 Pages: 661-& Published: 1970
ISSN: 0003-0503