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KEY=MEMORANDUM - MARQUIS PRECIOUS

THE SCIENTIFIC JOURNAL

AUTHORSHIP AND THE POLITICS OF KNOWLEDGE IN THE NINETEENTH CENTURY

University of Chicago Press Not since the printing press has a media object been as celebrated for its role in the advancement of knowledge as the scientific journal. From open communication to peer review, the scientific journal has long been central both to the identity of academic scientists and to the public legitimacy of scientific knowledge. But that was not always the case. At the dawn of the nineteenth century, academies and societies dominated elite study of the natural world. Journals were a relatively marginal feature of this world, and sometimes even an object of outright suspicion. The Scientific Journal tells the story of how that changed. Alex Csiszar takes readers deep into nineteenth-century London and Paris, where savants struggled to reshape scientific life in the light of rapidly changing political mores and the growing importance of the press in public life. The scientific journal did not arise as a natural solution to the problem of communicating scientific discoveries. Rather, as Csiszar shows, its dominance was a hard-won compromise born of political exigencies, shifting epistemic values, intellectual property debates, and the demands of commerce. Many of the tensions and problems that plague scholarly publishing today are rooted in these tangled beginnings. As we seek to make sense

of our own moment of intense experimentation in publishing platforms, peer review, and information curation, Csiszar argues powerfully that a better understanding of the journal's past will be crucial to imagining future forms for the expression and organization of knowledge.

DEMOCRATIC EMPOWERMENT IN THE EUROPEAN UNION

Edward Elgar Publishing This book looks at democratic empowerment via institutional designs that extend the political rights of European citizens. It focuses on three themes: first, the positive and negative effects of the European Union institutional design on the political rights of its citizens; second, challenges for democratic regimes across the world in the 21st century in the context of regionalism and globalization; third, the constraints of neoliberalism and capitalist markets on the ability of citizens to effectively achieve their political rights within the Union.

STABILITY OF LINE SOLITONS FOR THE KP-II EQUATION IN \mathbb{R}^2

American Mathematical Soc. The author proves nonlinear stability of line soliton solutions of the KP-II equation with respect to transverse perturbations that are exponentially localized as $e^{-\lambda|x|}$. He finds that the amplitude of the line soliton converges to that of the line soliton at initial time whereas jumps of the local phase shift of the crest propagate in a finite speed toward $x=0$. The local amplitude and the phase shift of the crest of the line solitons are described by a system of 1D wave equations with diffraction terms.

COMBINATORIAL FLOER HOMOLOGY

American Mathematical Soc. The authors define combinatorial Floer homology of a transverse pair of noncontractible nonisotopic embedded loops in an oriented 3-manifold without boundary, prove that it is invariant under isotopy, and prove that it is isomorphic to the original Lagrangian Floer homology. Their proof uses a formula for the Viterbo-Maslov index for a smooth lune in a 3-manifold.

EDUCATIONAL INEQUALITY AND SCHOOL FINANCE

WHY MONEY MATTERS FOR AMERICA'S STUDENTS

Harvard Education Press In *Educational Inequality and School Finance*, Bruce D. Baker offers a comprehensive examination of how US public schools receive and spend money. Drawing on extensive longitudinal data and numerous studies of states and districts, he

provides a vivid and dismaying portrait of the stagnation of state investment in public education and the continuing challenges of achieving equity and adequacy in school funding. Baker explores school finance, the school and classroom resources derived from school funding, and how and why those resources matter. He provides a critical examination of popular assumptions that undergird the policy discourse around school funding—notably, that money doesn't matter and that we are spending more and getting less—and shows how these misunderstandings contribute to our reluctance to increase investment in education at a time when the demands on our educational system are rising. Through an introduction to the concepts of adequacy, equity, productivity, and efficiency, Baker shows how these can be used to evaluate policy reforms. He argues that we know a great deal about the role and importance of money in schools, the mechanisms through which money matters for student outcomes, and the trade-offs involved, and he presents a framework for designing and financing an equitable and adequate public education system, with balanced and stable sources of revenue. Educational Inequality and School Finance takes an issue all too often relegated to technical experts and makes it accessible for broader public empowerment and engagement.

PERIOD FUNCTIONS FOR MAASS WAVE FORMS AND COHOMOLOGY

*American Mathematical Soc. The authors construct explicit isomorphisms between spaces of Maass wave forms and cohomology groups for discrete cofinite groups $\Gamma \subset \mathrm{PSL}_2(\mathbb{R})$. In the case that Γ is the modular group $\mathrm{PSL}_2(\mathbb{Z})$ this gives a cohomological framework for the results in *Period functions for Maass wave forms*. I, of J. Lewis and D. Zagier in *Ann. Math.* 153 (2001), 191-258, where a bijection was given between cuspidal Maass forms and period functions. The authors introduce the concepts of mixed parabolic cohomology group and semi-analytic vectors in principal series representation. This enables them to describe cohomology groups isomorphic to spaces of Maass cusp forms, spaces spanned by residues of Eisenstein series, and spaces of all Γ -invariant eigenfunctions of the Laplace operator. For spaces of Maass cusp forms the authors also describe isomorphisms to parabolic cohomology groups with smooth coefficients and standard cohomology groups with distribution coefficients. They use the latter correspondence to relate the Petersson scalar product to the cup product in cohomology.*

NON-SEMISIMPLE EXTENDED TOPOLOGICAL QUANTUM FIELD THEORIES

American Mathematical Society View the abstract.

HYPERCONTRACTIVITY IN GROUP VON NEUMANN ALGEBRAS

American Mathematical Soc. In this paper, the authors provide a combinatorial/numerical method to establish new hypercontractivity estimates in group von Neumann algebras. They illustrate their method with free groups, triangular groups and finite cyclic groups, for which they obtain optimal time hypercontractive inequalities with respect to the Markov process given by the word length and with an even integer. Interpolation and differentiation also yield general hypercontractivity for via logarithmic Sobolev inequalities. The authors' method admits further applications to other discrete groups without small loops as far as the numerical part—which varies from one group to another—is implemented and tested on a computer. The authors also develop another combinatorial method which does not rely on computational estimates and provides (non-optimal) hypercontractive inequalities for a larger class of groups/lengths, including any finitely generated group equipped with a conditionally negative word length, like infinite Coxeter groups. The authors' second method also yields hypercontractivity bounds for groups admitting a finite dimensional proper cocycle. Hypercontractivity fails for conditionally negative lengths in groups satisfying Kazhdan's property (T).

SHEAVES ON GRAPHS, THEIR HOMOLOGICAL INVARIANTS, AND A PROOF OF THE HANNA NEUMANN CONJECTURE

American Mathematical Soc. In this paper the author establishes some foundations regarding sheaves of vector spaces on graphs and their invariants, such as homology groups and their limits. He then uses these ideas to prove the Hanna Neumann Conjecture of the 1950s; in fact, he proves a strengthened form of the conjecture.

OVERWHELMED

WORK, LOVE AND PLAY WHEN NO ONE HAS THE TIME

A&C Black In her attempts to juggle work and family life, Brigid Schulte has baked cakes until 2 a.m., frantically (but surreptitiously) sent important emails during school trips and then worked long into the night after her children were in bed. Realising she had become someone who constantly burst in late, trailing shoes and schoolbooks and biscuit crumbs, she began to question, like so many of us, whether it is possible to be anything you want to be, have a family and still have time to breathe. So when Schulte met an eminent sociologist who studies time and he told her she enjoyed thirty hours of leisure each week, she thought her head was going to pop off. What followed was a trip down the rabbit hole of busy-ness, a journey to discover why so many of us find it near-impossible to press the 'pause' button on life and what got us here in the first place. Overwhelmed maps the individual, historical, biological and societal stresses that have ripped working mothers' and fathers' leisure to shreds, and asks how it might be possible for us to put the

pieces back together. Seeking insights, answers and inspiration, Schulte explores everything from the wiring of the brain and why workplaces are becoming increasingly demanding, to worldwide differences in family policy, how cultural norms shape our experiences at work, our unequal division of labour at home and why it's so hard for everyone - but women especially - to feel they deserve an elusive moment of peace.

MULTIPLE HILBERT TRANSFORMS ASSOCIATED WITH POLYNOMIALS

American Mathematical Soc. Nothing provided

MINIMUM DETERRENCE: EXAMINING THE EVIDENCE

Routledge The National Institute for Public Policy's new book, *Minimum Deterrence: Examining the Evidence*, is the first of its kind. Dr. Keith Payne, former Secretary of Defense James Schlesinger and an unparalleled bipartisan group of senior civilian and military experts critically examine eight basic assumptions of Minimum Deterrence against available evidence. In general, Minimum Deterrence does not fare well under the careful scrutiny. Proponents of a "Minimum Deterrent" US nuclear force posture believe that anywhere from a handful to a few hundred nuclear weapons are adequate to deter reliably and predictably any enemy from attacking the United States now and in the future. Because nuclear weapons are so destructive, their thinking goes, no foreign leader would dare challenge US capabilities. The benefits, advocates claim, of reducing US nuclear weapons to the "minimum" level needed are: better relations with Russia and China, reinforcement of the arms control and Nonproliferation Treaty, billions of defense dollars in savings, and greater international stability on the way to "nuclear zero." As political pressure builds to pursue this vision of minimum US deterrence, *Minimum Deterrence: Examining the Evidence* stands as the seminal study to address the many claims of great benefit using available evidence. This book was published as a special issue of *Comparative Strategy*.

CFA PROGRAM CURRICULUM 2019 LEVEL II VOLUMES 1-6 BOX SET

John Wiley & Sons Master the practical aspects of the CFA Program curriculum with expert instruction for the 2019 exam The same official curricula that CFA Program candidates receive with program registration is now publicly available for purchase. *CFA Program Curriculum 2019 Level II, Volumes 1-6* provides the complete Level II curriculum for the 2019 exam, with practical instruction on the Candidate Body of Knowledge (CBOK) and how it is applied, including expert guidance on incorporating concepts into practice. Level II focuses on complex analysis with an emphasis on asset valuation, and is designed to help you use investment concepts appropriately in situations analysts commonly face. Coverage includes ethical and professional standards, quantitative analysis, economics,

financial reporting and analysis, corporate finance, equities, fixed income, derivatives, alternative investments, and portfolio management organized into individual study sessions with clearly defined Learning Outcome Statements. Charts, graphs, figures, diagrams, and financial statements illustrate complex concepts to facilitate retention, and practice questions with answers allow you to gauge your understanding while reinforcing important concepts. While Level I introduced you to basic foundational investment skills, Level II requires more complex techniques and a strong grasp of valuation methods. This set dives deep into practical application, explaining complex topics to help you understand and retain critical concepts and processes. Incorporate analysis skills into case evaluations Master complex calculations and quantitative techniques Understand the international standards used for valuation and analysis Gauge your skills and understanding against each Learning Outcome Statement CFA Institute promotes the highest standards of ethics, education, and professional excellence among investment professionals. The CFA Program curriculum guides you through the breadth of knowledge required to uphold these standards. The three levels of the program build on each other. Level I provides foundational knowledge and teaches the use of investment tools; Level II focuses on application of concepts and analysis, particularly in the valuation of assets; and Level III builds toward synthesis across topics with an emphasis on portfolio management.

CFA PROGRAM CURRICULUM 2018 LEVEL II

John Wiley & Sons Master the practical aspects of the CFA Program Curriculum with expert instruction for the 2018 exam The same official curricula that CFA Program candidates receive with program registration is now publicly available for purchase. CFA Program Curriculum 2018 Level II, Volumes 1-6 provides the complete Level II Curriculum for the 2018 exam, with practical instruction on the Candidate Body of Knowledge (CBOK) and how it is applied, including expert guidance on incorporating concepts into practice. Level II focuses on complex analysis with an emphasis on asset valuation, and is designed to help you use investment concepts appropriately in situations analysts commonly face. Coverage includes ethical and professional standards, quantitative analysis, economics, financial reporting and analysis, corporate finance, equities, fixed income, derivatives, alternative investments, and portfolio management organized into individual study sessions with clearly defined Learning Outcome Statements. Charts, graphs, figures, diagrams, and financial statements illustrate complex concepts to facilitate retention, and practice questions with answers allow you to gauge your understanding while reinforcing important concepts. While Level I introduced you to basic foundational investment skills, Level II requires more complex techniques and a strong grasp of valuation methods. This set dives deep into practical application, explaining complex topics to help you understand and retain critical concepts and processes. Incorporate analysis skills into case evaluations Master complex calculations and quantitative techniques Understand the international standards used for valuation and analysis Gauge your skills and understanding against each Learning Outcome Statement CFA Institute promotes the

highest standards of ethics, education, and professional excellence among investment professionals. The CFA Program Curriculum guides you through the breadth of knowledge required to uphold these standards. The three levels of the program build on each other. Level I provides foundational knowledge and teaches the use of investment tools; Level II focuses on application of concepts and analysis, particularly in the valuation of assets; and Level III builds toward synthesis across topics with an emphasis on portfolio management.

DISORDER AND THE DISINFORMATION SOCIETY

THE SOCIAL DYNAMICS OF INFORMATION, NETWORKS AND SOFTWARE

Routledge This book is the first general social analysis that seriously considers the daily experience of information disruption and software failure within contemporary Western society. Through an investigation of informationalism, defined as a contemporary form of capitalism, it describes the social processes producing informational disorder. While most social theory sees disorder as secondary, pathological or uninteresting, this book takes disordering processes as central to social life. The book engages with theories of information society which privilege information order, offering a strong counterpoint centred on "disinformation." *Disorder and the Disinformation Society* offers a practical agenda, arguing that difficulties in producing software are both inherent to the process of developing software and in the social dynamics of informationalism. It outlines the dynamics of software failure as they impinge on information workers and on daily life, explores why computerized finance has become inherently self-disruptive, asks how digital enclosure and intellectual property create conflicts over cultural creativity and disrupt informational accuracy and scholarship, and reveals how social media can extend, but also distort, the development of social movements.

KNOT INVARIANTS AND HIGHER REPRESENTATION THEORY

American Mathematical Soc. The author constructs knot invariants categorifying the quantum knot variants for all representations of quantum groups. He shows that these invariants coincide with previous invariants defined by Khovanov for sl and sl and by Mazorchuk-Stroppel and Sussan for sl . The author's technique is to study 2-representations of 2-quantum groups (in the sense of Rouquier and Khovanov-Lauda) categorifying tensor products of irreducible representations. These are the representation categories of certain finite dimensional algebras with an explicit diagrammatic presentation, generalizing the cyclotomic quotient of the KLR algebra. When the Lie algebra under consideration is sl , the author shows that these categories agree with certain subcategories of parabolic category for gl .

OCEANOGRAPHICAL ENGINEERING

Courier Corporation As is the case with many modern fields of study, oceanographical engineering cuts across the boundaries of several disciplines. Like other scientific endeavors, it aims to understand the nature of the ocean and to make use of this understanding for the benefit of humanity through better ports, safer and more economical operations at sea, and greater use of the oceans' natural resources--food, raw materials, and recreation. This graduate-level text requires a knowledge of fluid mechanics; a background in the motions of sediments in fluids is advisable, as is a concurrent course in structural dynamics. Topics include the theory of periodic waves; tsunamis, storm surges, and harbor oscillations; the effect of structures on waves; waves in shoaling water; tides and sea level changes; currents; shores and shore processes; some characteristics of the oceans' waters; moorings; and other related subjects. Certain portions of the book pertaining to the distribution of temperatures and salinities in the ocean are largely descriptive; other portions, such as the sections on waves, are mathematical. Numerous drawings and photographs supplement the text.

ADELIC DIVISORS ON ARITHMETIC VARIETIES

American Mathematical Soc. In this article, the author generalizes several fundamental results for arithmetic divisors, such as the continuity of the volume function, the generalized Hodge index theorem, Fujita's approximation theorem for arithmetic divisors, Zariski decompositions for arithmetic divisors on arithmetic surfaces and a special case of Dirichlet's unit theorem on arithmetic varieties, to the case of the adelic arithmetic divisors.

THE TRIANGLE-FREE PROCESS AND THE RAMSEY NUMBER $R(3,K)$

American Mathematical Soc. The areas of Ramsey theory and random graphs have been closely linked ever since Erdős's famous proof in 1947 that the "diagonal" Ramsey numbers $R(k)$ grow exponentially in k . In the early 1990s, the triangle-free process was introduced as a model which might potentially provide good lower bounds for the "off-diagonal" Ramsey numbers $R(3,k)$. In this model, edges of K_n are introduced one-by-one at random and added to the graph if they do not create a triangle; the resulting final (random) graph is denoted $G_{n,\Delta}$. In 2009, Bohman succeeded in following this process for a positive fraction of its duration, and thus obtained a second proof of Kim's celebrated result that $R(3,k) = \Theta(k^2/\log k)$. In this paper the authors improve the results of both Bohman and Kim and follow the triangle-free process all the way to its asymptotic end.

DIRECT AND INVERSE SCATTERING AT FIXED ENERGY FOR MASSLESS CHARGED DIRAC FIELDS BY KERR-NEWMAN-DE SITTER BLACK HOLES

American Mathematical Soc. In this paper, the authors study the direct and inverse scattering theory at fixed energy for massless charged Dirac fields evolving in the exterior region of a Kerr-Newman-de Sitter black hole. In the first part, they establish the existence and asymptotic completeness of time-dependent wave operators associated to our Dirac fields. This leads to the definition of the time-dependent scattering operator that encodes the far-field behavior (with respect to a stationary observer) in the asymptotic regions of the black hole: the event and cosmological horizons. The authors also use the miraculous property (quoting Chandrasekhar)—that the Dirac equation can be separated into radial and angular ordinary differential equations—to make the link between the time-dependent scattering operator and its stationary counterpart. This leads to a nice expression of the scattering matrix at fixed energy in terms of stationary solutions of the system of separated equations. In a second part, the authors use this expression of the scattering matrix to study the uniqueness property in the associated inverse scattering problem at fixed energy. Using essentially the particular form of the angular equation (that can be solved explicitly by Frobenius method) and the Complex Angular Momentum technique on the radial equation, the authors are finally able to determine uniquely the metric of the black hole from the knowledge of the scattering matrix at a fixed energy.

NEAR SOLITON EVOLUTION FOR EQUIVARIANT SCHRÖDINGER MAPS IN TWO SPATIAL DIMENSIONS IOAN BEJENARU, UNIVERSITY OF CALIFORNIA, SAN DIEGO, LA JOLLA, CA, AND DANIEL TATARU, UNIVERSITY OF CALIFORNIA, BERKELEY, BERKELEY, CA

American Mathematical Soc. The authors consider the Schrödinger Map equation in $2+1$ dimensions, with values into \mathbb{S}^2 . This admits a lowest energy steady state Q , namely the stereographic projection, which extends to a two dimensional family of steady states by scaling and rotation. The authors prove that Q is unstable in the energy space \dot{H}^1 . However, in the process of proving this they also show that within the equivariant class Q is stable in a stronger topology $X \subset \dot{H}^1$.

COMPUTER GRAPHICS AND GEOMETRIC MODELING USING BETA-SPLINES

Springer

GLOBAL FLOOD HAZARD

APPLICATIONS IN MODELING, MAPPING AND FORECASTING

John Wiley & Sons Global Flood Hazard Flooding is a costly natural disaster in terms of damage to land, property and infrastructure. This volume describes the latest tools and technologies for modeling, mapping, and predicting large-scale flood risk. It also presents readers with a range of remote sensing data sets successfully used for predicting and mapping floods at different scales. These resources can enable policymakers, public planners, and developers to plan for, and respond to, flooding with greater accuracy and effectiveness. Describes the latest large-scale modeling approaches, including hydrological models, 2-D flood inundation models, and global flood forecasting models Showcases new tools and technologies such as Aqueeduct, a new web-based tool used for global assessment and projection of future flood risk under climate change scenarios Features case studies describing best-practice uses of modeling techniques, tools, and technologies Global Flood Hazard is an indispensable resource for researchers, consultants, practitioners, and policy makers dealing with flood risk, flood disaster response, flood management, and flood mitigation.

SINGULARITY THEORY FOR NON-TWIST KAM TORI

American Mathematical Soc. In this monograph the authors introduce a new method to study bifurcations of KAM tori with fixed Diophantine frequency in parameter-dependent Hamiltonian systems. It is based on Singularity Theory of critical points of a real-valued function which the authors call the potential. The potential is constructed in such a way that: nondegenerate critical points of the potential correspond to twist invariant tori (i.e. with nondegenerate torsion) and degenerate critical points of the potential correspond to non-twist invariant tori. Hence, bifurcating points correspond to non-twist tori.

SATELLITE ALTIMETRY OVER OCEANS AND LAND SURFACES

CRC Press Satellite remote sensing, in particular by radar altimetry, is a crucial technique for observations of the ocean surface and of many aspects of land surfaces, and of paramount importance for climate and environmental studies. This book provides a state-of-the-art overview of the satellite altimetry techniques and related missions, and reviews the most-up-to date applications to ocean dynamics and sea level. It also discusses related space-based observations of the ocean surface and of the marine geoid, as well as applications of satellite altimetry to the cryosphere and land surface waters; operational oceanography and its applications to navigation, fishing and defense.

MACHIAVELLI FOR WOMEN

DEFEND YOUR WORTH, GROW YOUR AMBITION, AND WIN THE WORKPLACE

Simon and Schuster From the NPR host of *The Indicator* and correspondent for *Planet Money* comes an “accessible, funny, clear-eyed, and practical” (Sarah Knight, *New York Times* bestselling author) guide for how women can apply the principles of 16th-century philosopher Niccolò Machiavelli to their work lives and finally shatter the glass ceiling—perfect for fans of *Feminist Fight Club*, *Lean In*, and *Nice Girls Don’t Get the Corner Office*. Women have been making strides towards equality for decades, or so we’re often told. They’ve been increasingly entering male-dominated areas of the workforce and consistently surpassing their male peers in grades, university attendance, and degrees. They’ve recently stormed the political arena with a vengeance. But despite all of this, the payoff is—quite literally—not there: the gender pay gap has held steady at about 20% since 2000. And the number of female CEOs for Fortune 500 companies has actually been declining. So why, in the age of #MeToo and #TimesUp, is the glass ceiling still holding strong? And how can we shatter it for once and for all? Stacy Vanek Smith’s advice: ask Machiavelli “with this delicious look at what we have to gain by examining our relationship to power” (Sally Helgesen, *New York Times* bestselling author). Using *The Prince* as a guide and with charm and wit, Smith applies Renaissance politics to the 21st century, and demonstrates how women can take and maintain power in careers where they have long been cast as second-best. “*Machiavelli For Women* is the ultimate battle guide for our times. Brimming with hard-boiled strategies, laced with wit, it’s a must-read for every woman ready to wield power unapologetically” (Claire Shipman, coauthor of *The Confidence Code*).

NONLINEAR STABILITY OF EKMAN BOUNDARY LAYERS IN ROTATING STRATIFIED FLUIDS

American Mathematical Soc. A stationary solution of the rotating Navier-Stokes equations with a boundary condition is called an Ekman boundary layer. This book constructs stationary solutions of the rotating Navier-Stokes-Boussinesq equations with stratification effects in the case when the rotating axis is not necessarily perpendicular to the horizon. The author calls such stationary solutions Ekman layers. This book shows the existence of a weak solution to an Ekman perturbed system, which satisfies the strong energy inequality. Moreover, the author discusses the uniqueness of weak solutions and computes the decay rate of weak solutions with respect to time under some assumptions on the Ekman layers and the physical parameters. The author also shows that there exists a unique global-in-time strong solution of the perturbed system when the initial datum is sufficiently small. Comparing a weak solution satisfying the strong energy inequality with the strong solution implies that the weak solution is smooth with respect to time when

time is sufficiently large.

SPECTRA OF SYMMETRIZED SHUFFLING OPERATORS

American Mathematical Soc. For a finite real reflection group W and a W -orbit \mathcal{O} of flats in its reflection arrangement--or equivalently a conjugacy class of its parabolic subgroups--the authors introduce a statistic $\operatorname{noninv}_{\mathcal{O}}(w)$ on w in W that counts the number of " \mathcal{O} -noninversions" of w . This generalizes the classical (non-)inversion statistic for permutations w in the symmetric group \mathfrak{S}_n . The authors then study the operator $\nu_{\mathcal{O}}$ of right-multiplication within the group algebra $\mathbb{C}W$ by the element that has $\operatorname{noninv}_{\mathcal{O}}(w)$ as its coefficient on w .

ALGEBRAIC Q-GROUPS AS ABSTRACT GROUPS

American Mathematical Soc. The author analyzes the abstract structure of algebraic groups over an algebraically closed field k . For k of characteristic zero and a given connected affine algebraic Q -group, the main theorem describes all the affine algebraic Q -groups such that the groups and are isomorphic as abstract groups. In the same time, it is shown that for any two connected algebraic Q -groups and Q' , the elementary equivalence of the pure groups and implies that they are abstractly isomorphic. In the final section, the author applies his results to characterize the connected algebraic groups, all of whose abstract automorphisms are standard, when k is either Q or of positive characteristic. In characteristic zero, a fairly general criterion is exhibited.

NONLINEAR HYPERBOLIC EQUATIONS – THEORY, COMPUTATION METHODS, AND APPLICATIONS

PROCEEDINGS OF THE SECOND INTERNATIONAL CONFERENCE ON NONLINEAR HYPERBOLIC PROBLEMS, AACHEN, FRG, MARCH 14 TO 18, 1988

Springer Science & Business Media On the occasion of the International Conference on Nonlinear Hyperbolic Problems held in St. Etienne, France, 1986 it was decided to start a two years cycle of conferences on this very rapidly expanding branch of mathematics and its applications in Continuum Mechanics and Aerodynamics. The second conference took place in Aachen, FRG, March 14-18, 1988. The number of more than 200 participants from more than 20 countries all over the world and about 100 invited and contributed papers, well balanced between theory, numerical analysis and applications, do not leave any doubt that it was the right decision to start this cycle of conferences, of which the third will be organized in Sweden in 1990. This volume contains sixty eight

original papers presented at the conference, twenty two of them dealing with the mathematical theory, e.g. existence, uniqueness, stability, behaviour of solutions, physical modelling by evolution equations. Twenty two articles in numerical analysis are concerned with stability and convergence to the physically relevant solutions such as schemes especially devised for treating shocks, contact discontinuities and artificial boundaries. Twenty four papers contain multidimensional computational applications to nonlinear waves in solids, flow through porous media and compressible fluid flow including shocks, real gas effects, multiphase phenomena, chemical reactions etc. The editors and organizers of the Second International Conference on Hyperbolic Problems would like to thank the Scientific Committee for the generous support of recommending invited lectures and selecting the contributed papers of the conference.

OPERATOR THEORY, OPERATOR ALGEBRAS, AND APPLICATIONS

American Mathematical Soc.

ADVANCES AND APPLICATIONS OF DSMT FOR INFORMATION FUSION, VOL. IV

COLLECTED WORKS

Infinite Study The fourth volume on Advances and Applications of Dezert-Smarandache Theory (DSmT) for information fusion collects theoretical and applied contributions of researchers working in different fields of applications and in mathematics. The contributions (see List of Articles published in this book, at the end of the volume) have been published or presented after disseminating the third volume (2009, <http://fs.gallup.unm.edu/DSmT-book3.pdf>) in international conferences, seminars, workshops and journals.

14-19 DIPLOMAS

FIFTH REPORT OF SESSION 2006-07, REPORT, TOGETHER WITH FORMAL MINUTES, ORAL AND WRITTEN EVIDENCE

The Stationery Office In October 2004, the Tomlinson report (downloadable at <http://www.dfes.gov.uk/14-19/documents/Final%20Report.pdf>) set out wide-ranging proposals for changes to the curriculum and examination arrangements for the education of 14 to 19 year olds. In February 2005, the Government published its response in the form of a White Paper (Cm. 6476, ISBN 9780101647625) detailing a 10-year reform programme including the introduction of 14 new

awards (originally called vocational Diplomas); thus rejecting the overarching Diploma award recommended in the Tomlinson report. Whilst stating its belief that the proposed changes would have been better structured and more coherent had Tomlinson's proposals been adopted, the Committee's report examines the design, development and implementation of the Government's Diplomas scheme.

A COMPLETE CLASSIFICATION OF THE ISOLATED SINGULARITIES FOR NONLINEAR ELLIPTIC EQUATIONS WITH INVERSE SQUARE POTENTIALS

American Mathematical Soc.

WEIGHTED BERGMAN SPACES INDUCED BY RAPIDLY INCREASING WEIGHTS

American Mathematical Soc.

GENERALIZED DESCRIPTIVE SET THEORY AND CLASSIFICATION THEORY

American Mathematical Soc. *Descriptive set theory is mainly concerned with studying subsets of the space of all countable binary sequences. In this paper the authors study the generalization where countable is replaced by uncountable. They explore properties of generalized Baire and Cantor spaces, equivalence relations and their Borel reducibility. The study shows that the descriptive set theory looks very different in this generalized setting compared to the classical, countable case. They also draw the connection between the stability theoretic complexity of first-order theories and the descriptive set theoretic complexity of their isomorphism relations. The authors' results suggest that Borel reducibility on uncountable structures is a model theoretically natural way to compare the complexity of isomorphism relations.*

ROBOT VISION

Springer Science & Business Media *Over the past five years robot vision has emerged as a subject area with its own identity. A text based on the proceedings of the Symposium on Computer Vision and Sensor-based Robots held at the General Motors Research Laboratories, Warren, Michigan in 1978, was published by Plenum Press in 1979. This book, edited by George G. Dodd and Lothar Rosso!, probably represented the first identifiable book covering some aspects of robot vision. The subject of robot vision and sensory controls (RoViSeC) occupied an entire international conference held in the Hilton Hotel in Stratford, England in May 1981. This was*

followed by a second RoViSeC held in Stuttgart, Germany in November 1982. The large attendance at the Stratford conference and the obvious interest in the subject of robot vision at international robot meetings, provides the stimulus for this current collection of papers. Users and researchers entering the field of robot vision for the first time will encounter a bewildering array of publications on all aspects of computer vision of which robot vision forms a part. It is the grey area dividing the different aspects of computer vision which is not easy to identify. Even those involved in research sometimes find difficulty in separating the essential differences between vision for automated inspection and vision for robot applications. Both of these are to some extent applications of pattern recognition with the underlying philosophy of each defining the techniques used.

A QUANTUM KIRWAN MAP: BUBBLING AND FREDHOLM THEORY FOR SYMPLECTIC VORTICES OVER THE PLANE

American Mathematical Soc. Consider a Hamiltonian action of a compact connected Lie group on a symplectic manifold . Conjecturally, under suitable assumptions there exists a morphism of cohomological field theories from the equivariant Gromov-Witten theory of to the Gromov-Witten theory of the symplectic quotient. The morphism should be a deformation of the Kirwan map. The idea, due to D. A. Salamon, is to define such a deformation by counting gauge equivalence classes of symplectic vortices over the complex plane . The present memoir is part of a project whose goal is to make this definition rigorous. Its main results deal with the symplectically aspherical case.

STUDY AND MASTER MATHEMATICAL LITERACY GRADE 12 CAPS LEARNER'S BOOK

REDUCED FUSION SYSTEMS OVER 2-GROUPS OF SECTIONAL RANK AT MOST 4

American Mathematical Soc. The author classifies all reduced, indecomposable fusion systems over finite -groups of sectional rank at most . The resulting list is very similar to that by Gorenstein and Harada of all simple groups of sectional -rank at most . But this method of proof is very different from theirs, and is based on an analysis of the essential subgroups which can occur in the fusion systems.