

Math 114 Analytic Geometry And Calculus Ii Fall 2015 Syllabus

In this article the authors develop a new method to deal with maximal Cohen–Macaulay modules over non–isolated surface singularities. In particular, they give a negative answer on an old question of Schreyer about surface singularities with only countably many indecomposable maximal Cohen–Macaulay modules. Next, the authors prove that the degenerate cusp singularities have tame Cohen–Macaulay representation type. The authors' approach is illustrated on the case of k as well as several other rings. This study of maximal Cohen–Macaulay modules over non–isolated singularities leads to a new class of problems of linear algebra, which the authors call representations of decorated bunches of chains. They prove that these matrix problems have tame representation type and describe the underlying canonical forms.

Alexander Reznikov (1960-2003) was a brilliant and highly original mathematician. This book presents 18 articles by prominent mathematicians and is dedicated to his memory. In addition it contains an influential, so far unpublished manuscript by Reznikov of book length. The book further provides an extensive survey on Kleinian groups in higher dimensions and some articles centering on Reznikov as a person.

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"This work is an outgrowth of a conference held at the Hebrew University in Jerusalem on Regulators in Analysis, Geometry and Number Theory, and should appeal to a broad audience of graduate students and research mathematicians."--BOOK JACKET.

This volume constitutes the proceedings of a workshop whose main purpose was to exchange information on current topics in complex analysis, differential geometry, mathematical physics and applications, and to group aspects of new mathematics.

This volume contains the proceedings of an AMS special session held at the 1999 Joint Mathematics Meetings in San Antonio. The participants were an international group of researchers studying singularities from algebraic and analytic viewpoints. The contributed papers contain original results as well as some expository and historical material. This volume is dedicated to Oscar Zariski, on the one hundredth anniversary of his birth. The topics include the role of valuation theory in algebraic geometry with recent applications to the structure of morphisms; algorithmic approaches to resolution of equisingular surface singularities and locally toric varieties; weak subintegral closures of ideals and Rees valuations; constructions of universal weakly subintegral extensions of rings; direct-sum decompositions of finitely generated modules; construction and examples of resolution graphs of surface singularities; Jacobians of meromorphic curves; investigation of spectral numbers of curve singularities using Puiseux pairs; Grobner basis calculations of Hochschild homology for hypersurfaces with isolated singularities; and the theory of characteristic classes of singular spaces - a brief history with conjectures and open problems.

Each number is the catalogue of a specific school or college of the University.

Note: series volume/number designation applies to entire series, not to this title.

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Several important aspects of moduli spaces and irreducible holomorphic symplectic manifolds were highlighted at the conference "Algebraic and Complex Geometry" held September 2012 in Hannover, Germany. These two subjects of recent ongoing progress belong to the most spectacular developments in Algebraic and Complex Geometry. Irreducible symplectic manifolds are of interest to algebraic and differential geometers alike, behaving similar to K3 surfaces and abelian varieties in certain ways, but being by far less well-understood. Moduli spaces, on the other hand, have been a rich source of open questions and discoveries for decades and still continue to be a hot topic in itself as well as with its interplay with neighbouring fields such as arithmetic geometry and string theory. Beyond the above focal topics this volume reflects the broad diversity of lectures at the conference and comprises 11 papers on current research from different areas of algebraic and complex geometry sorted in alphabetic order by the first author. It also includes a full list of speakers with all titles and abstracts.

Includes undergraduate and graduate courses.

This book is dedicated to the memory of Mikael Passare, an outstanding Swedish mathematician who devoted his life to developing the theory of analytic functions in several complex variables and exploring geometric ideas first-hand. It includes several papers describing Mikael's life as well as his contributions to mathematics, written by friends of Mikael's who share his attitude and passion for science. A major section of the book presents original research articles that further develop Mikael's ideas and which were written by his former students and co-authors. All these mathematicians work at the interface of analysis and geometry, and Mikael's impact on their research cannot be underestimated. Most of the contributors were invited speakers at the conference organized at Stockholm University in his honor. This book is an attempt to express our gratitude towards this great mathematician, who left us full of energy and new creative mathematical ideas.

The subject of the book is Diophantine approximation and Nevanlinna theory. This book proves not just some new results and directions but challenging open problems in Diophantine approximation and Nevanlinna theory. The authors' newest research activities on these subjects over the past eight years are collected here. Some of the significant findings are the proof of Green-Griffiths conjecture by using meromorphic connections and Jacobian sections, generalized abc-conjecture, and more.

The book provides the proof of a complex geometric version of a well-known result in algebraic geometry: the theorem of Riemann–Roch–Grothendieck for proper submersions. It gives an equality of cohomology classes in Bott–Chern cohomology, which is a refinement for complex manifolds of de Rham cohomology. When the manifolds are Kähler, our main result is known. A proof can be given using the elliptic Hodge theory of the fibres, its deformation via Quillen's superconnections, and a version in families of the 'fantastic cancellations' of McKean–Singer in local index theory. In the general case, this approach breaks down because the cancellations do not occur any more. One tool used in the book is a deformation of the Hodge theory of the fibres to a hypoelliptic Hodge theory, in such a way that the relevant cohomological information is preserved, and 'fantastic cancellations' do occur for the deformation. The deformed hypoelliptic Laplacian acts on the total space of the relative tangent bundle of the fibres. While the original hypoelliptic Laplacian

discovered by the author can be described in terms of the harmonic oscillator along the tangent bundle and of the geodesic flow, here, the harmonic oscillator has to be replaced by a quartic oscillator. Another idea developed in the book is that while classical elliptic Hodge theory is based on the Hermitian product on forms, the hypoelliptic theory involves a Hermitian pairing which is a mild modification of intersection pairing. Probabilistic considerations play an important role, either as a motivation of some constructions, or in the proofs themselves. This book presents contributions from two workshops in algebraic and analytic microlocal analysis that took place in 2012 and 2013 at Northwestern University. Featured papers expand on mini-courses and talks ranging from foundational material to advanced research-level papers, and new applications in symplectic geometry, mathematical physics, partial differential equations, and complex analysis are discussed in detail. Topics include Procesi bundles and symplectic reflection algebras, microlocal condition for non-displaceability, polarized complex manifolds, nodal sets of Laplace eigenfunctions, geodesics in the space of Kähler metrics, and partial Bergman kernels. This volume is a valuable resource for graduate students and researchers in mathematics interested in understanding microlocal analysis and learning about recent research in the area.

In the series of volumes which together will constitute the "Handbook of Differential Geometry" we try to give a rather complete survey of the field of differential geometry. The different chapters will both deal with the basic material of differential geometry and with research results (old and recent). All chapters are written by experts in the area and contain a large bibliography. In this second volume a wide range of areas in the very broad field of differential geometry is discussed, as there are Riemannian geometry, Lorentzian geometry, Finsler geometry, symplectic geometry, contact geometry, complex geometry, Lagrange geometry and the geometry of foliations. Although this does not cover the whole of differential geometry, the reader will be provided with an overview of some its most important areas. . Written by experts and covering recent research . Extensive bibliography . Dealing with a diverse range of areas . Starting from the basics

Preface of the Editors Ce volume prend sa source dans le Colloque en l'honneur de Pierre Dolbeault, organisé à l'occasion de son départ à la retraite, à l'initiative des Universités de Paris 6 et de Poitiers. Ce colloque, consacré à l'Analyse Complexe et à la Géométrie Analytique, s'est tenu à Paris, sur le campus de l'Université Pierre et Marie Curie, du 23 au 26 Juin 1992.11 réunis autour de ces thèmes une centaine de congressistes, dont de nombreux mathématiciens étrangers (Allemagne, Argentine, Canada, États-Unis, Islande, Italie, Pologne, Roumanie, Russie, Suède). Nous avons souhaité prolonger cet hommage par la publication d'un volume dédié à Pierre Dolbeault. Le présent recueil d'articles ne constitue pas strictement les actes du Colloque. Nous avons voulu qu'il rassemble uniquement des articles originaux ou synthétiques, qui illustrent l'œuvre scientifique de Pierre Dolbeault à travers les thèmes abordés ou la personnalité de leurs auteurs. Nous remercions les conférenciers

qui ont bien voulu contribuer a cet ouvrage, et Klas Diederich de l'avoir accueilli dans la collection "Aspects of Mathematics" qu'il dirige. Au nom du Comite d'Organisation du Colloque (C. Laurent-Thiebaut, J. Le Potier, J.B. Poly, J.P. Vigue et nous-memes), nous remercions les institutions qui nous ont apporte leur aide financiere et materielle: les Universites Paris 6 et de Poitiers, la Direction de la Recherche et des Etudes Doctorales, le Centre National de la Recherche Scientifique et le Ministere de la Recherche et de la Technologie.

This book considers the so-called Unlikely Intersections, a topic that embraces well-known issues, such as Lang's and Manin-Mumford's, concerning torsion points in subvarieties of tori or abelian varieties. More generally, the book considers algebraic subgroups that meet a given subvariety in a set of unlikely dimension. The book is an expansion of the Hermann Weyl Lectures delivered by Umberto Zannier at the Institute for Advanced Study in Princeton in May 2010. The book consists of four chapters and seven brief appendixes, the last six by David Masser. The first chapter considers multiplicative algebraic groups, presenting proofs of several developments, ranging from the origins to recent results, and discussing many applications and relations with other contexts. The second chapter considers an analogue in arithmetic and several applications of this. The third chapter introduces a new method for approaching some of these questions, and presents a detailed application of this (by Masser and the author) to a relative case of the Manin-Mumford issue. The fourth chapter focuses on the André-Oort conjecture (outlining work by Pila).

Advanced Studies in Pure Mathematics, Volume 18-I: Recent Topics in Differential and Analytic Geometry presents the developments in the field of analytical and differential geometry. This book provides some generalities about bounded symmetric domains. Organized into two parts encompassing 12 chapters, this volume begins with an overview of harmonic mappings and holomorphic foliations. This text then discusses the global structures of a compact Kähler manifold that is locally decomposable as an isometric product of Ricci-positive, Ricci-negative, and Ricci-flat parts. Other chapters consider the most recognized non-standard examples of compact homogeneous Einstein manifolds constructed via Riemannian submersions. This book discusses as well the natural compactification of the moduli space of polarized Einstein-Kähler orbitfold with a given Hilbert polynomials. The final chapter deals with solving a degenerate Monge-Ampère equation by constructing a family of Einstein-Kähler metrics on the smooth part of minimal varieties of general kind. This book is a valuable resource for graduate students and pure mathematicians.

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