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J.-L. Colliot-Thélène K. Kato P. Vojta

Arithmetic Algebraic Geometry

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Internazionale Matematico Estivo (C.I.M.E.)
held in Trento, Italy, June 24-July 2, 1991

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Authors

Jean-Louis Colliot-Thélène
Université Paris-Sud
Mathématique, Bât. 425
F-91005 Orsay Cedex, France

Kazuya Kato
Department of Mathematics
Tokyo Institute of Technology
Oh-Okayama, Meguro-ku
Tokyo, Japan

Paul Vojta
Department of Mathematics
University of California
Berkeley, CA 94720, USA

Editor
Edoardo Ballico
Dipartimento di Matematico
Università di Trento
38050 Povo, Trento, Italy

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PREFACE

The CIME Session on "Arithmetic Algebraic Geometry" was held at Villa Madruzzo (Trento, Italy) from June 24 to July 2, 1991.

There were the following lecture series:

- Jean Louis Colliot-Thélène: Cycles algébriques de torsion et K-théorie algébrique
- Kazuya Kato: Lectures on the approach to Iwasawa theory for Hasse-Weil L-function via B_{dR}
- Christophe Soulé: Arakelov Geometry
- Paul Vojta: Application of arithmetic geometry to Diophantine approximations

Furthermore, the participants gave several seminars, namely:

- Dan Abramovich: Subvarieties of Abelian Varieties and Jacobians
- Luca Barbieri Viale: Birational Invariants Via Cohomology Theories
- Torsten Ekedahl: a) An Infinite Version of Chinese Remainder Theorem
b) On the Density of Extensions of Generic Ramification Type
- Frans Oort: a) CM Liftings of Abelian Varieties
b) A Conjecture by Coleman Jacobians over \mathbb{C} having Complex Multiplication
c) Newton Polygons and Abelian Varieties
- Angelo Vistoli: Bivariant Intersection Theory and Alexander Duality
- Christoph Wirsching: Quillen's Metric for $G(2,4)$

This volume contains enlarged versions of three of the lecture series. For an exposition of Soulé's lectures, see the very recent book by Ch. Soulé, D. Abramovich, J. F. Burnol and J. K. Kramer: "Arakelov Geometry", Cambridge Studies in Advanced Mathematics 33, Cambridge University Press, 1992.

The four main speakers took particular pains to start at a level understandable by motivated (but not specialist) graduate students and then they arrived at the frontier of research (and beyond). They provided further support for their audience in various ways, before, during and after this CIME Session. Just an example: J.L. Colliot-Thélène drew up, as early as 1990, a long list of references (both elementary and very advanced) complete with detailed comments on their content: the list was widely circulated. The authors of the three lecture series published here made the same effort for their written versions.

I owe special thanks to several people (including all the lecturers and participants) for their precious help (both on mathematical and practical matters) in connection with the organization of the conference and the production of this volume.

Edoardo Ballico

Table of Contents

J.L. COLLIOT-THELENE, Cycles algébriques de torsion et K-théorie algébrique	1
K. KATO, Lectures on the approach to Iwasawa theory for Hasse-Weil L-functions via B_{dR}	50
P. VOJTA, Applications of arithmetic algebraic geometry to diophantine approximations	164