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Nota di contenuto	A robust implementation for solving the S-unit equation and several application (C. Rasmussen) -- Computing classical modular forms for arbitrary congruence subgroups (E. Assaf) -- Square root time Coleman integration on superelliptic curves (A. Best) -- Computing classical modular forms (A. Sutherland) -- Elliptic curves with good reduction outside of the first six primes (B. Matschke) -- Efficient computation of BSD invariants in genus 2 (R. van Bommel) -- Restrictions on Weil polynomials of Jacobians of hyperelliptic curves (E. Costa) -- Zen and the art of database maintenance (D. Roe) -- Effective obstructions to lifting Tate classes from positive characteristic (E. Costa) -- Conjecture: 100% of elliptic surfaces over Q have rank zero (A. Cowan) -- On rational Bianchi newforms and abelian surfaces with quaternionic multiplication (J. Voight) -- A database of Hilbert modular forms (J. Voight) -- Isogeny classes of Abelian Varieties over Finite Fields in the LMFDB (D. Roe) -- Computing rational points on genus 3 hyperelliptic curves (S. Hashimoto) -- Curves with sharp Chabauty-Coleman bound

(S. Gajovi) -- Chabauty-Coleman computations on rank 1 Picard curves (S. Hashimoto) -- Linear dependence among Hecke eigenvalues (D. Kim) -- Congruent number triangles with the same hypotenuse (D. Lowry-Duda) -- Visualizing modular forms (D. Lowry-Duda) -- A Prym variety with everywhere good reduction over Q(61) (J. Voight) -- The S-integral points on the projective line minus three points via étale covers and Skolem's method (B. Poonen).

Sommario/riassunto

This volume contains articles related to the work of the Simons Collaboration “Arithmetic Geometry, Number Theory, and Computation.” The papers present mathematical results and algorithms necessary for the development of large-scale databases like the L-functions and Modular Forms Database (LMFDB). The authors aim to develop systematic tools for analyzing Diophantine properties of curves, surfaces, and abelian varieties over number fields and finite fields. The articles also explore examples important for future research. Specific topics include algebraic varieties over finite fields the Chabauty-Coleman method modular forms rational points on curves of small genus S-unit equations and integral points.