

Contents

Memories, Complexity and Horizons

Cameo of a Consummate Computabilist.	3
<i>Robert Goldblatt</i>	
Surfing with Rod	9
<i>Michael R. Fellows</i>	
Prequel to the Cornell Computer Science Department	19
<i>Anil Nerode</i>	
Some Questions in Computable Mathematics	22
<i>Denis R. Hirschfeldt</i>	
Introduction to Autoreducibility and Mitoticity	56
<i>Christian Glaßer, Dung T. Nguyen, Alan L. Selman, and Maximilian Witek</i>	
The Complexity of Complexity.	79
<i>Eric Allender</i>	
Bounded Pushdown Dimension vs Lempel Ziv Information Density	95
<i>Pilar Albert, Elvira Mayordomo, and Philippe Moser</i>	
Complexity with Rod	115
<i>Lance Fortnow</i>	
On Being Rod’s Graduate Student.	122
<i>Keng Meng Ng</i>	

Computable Combinatorics, Reverse Mathematics

Herrmann’s Beautiful Theorem on Computable Partial Orderings	127
<i>Carl G. Jockusch Jr.</i>	
Effectiveness of Hindman’s Theorem for Bounded Sums	134
<i>Damir D. Dzhabarov, Carl G. Jockusch Jr., Reed Solomon, and Linda Brown Westrick</i>	
Reverse Mathematics of Matroids	143
<i>Jeffrey L. Hirst and Carl Mummert</i>	
Weakly Represented Families in Reverse Mathematics.	160
<i>Rupert Hölzl, Dilip Raghavan, Frank Stephan, and Jing Zhang</i>	

The Vitali Covering Theorem in the Weihrauch Lattice 188
Vasco Brattka, Guido Gherardi, Rupert Hölzl, and Arno Pauly

Parallel and Serial Jumps of Weak König’s Lemma 201
Laurent Bienvenu and Rutger Kuiper

Computable Model Theory, Computable Algebra

Effectively Existentially-Atomic Structures 221
Antonio Montalbán

Irreducibles and Primes in Computable Integral Domains 238
Leigh Evron, Joseph R. Mileti, and Ethan Raliff-Crain

Revisiting Uniform Computable Categoricity: For the Sixtieth Birthday
of Prof. Rod Downey 254
Russell Miller

Enumeration Reducibility and Computable Structure Theory 271
Alexandra A. Soskova and Mariya I. Soskova

Strength and Weakness in Computable Structure Theory 302
Johanna N.Y. Franklin

On Constructive Nilpotent Groups 324
Nazif G. Khisamiev and Ivan V. Latkin

Computable Model Theory over the Reals 354
Andrey S. Morozov

The Lattice of Computably Enumerable Vector Spaces 366
Rumen D. Dimitrov and Valentina Harizanov

Injection Structures Specified by Finite State Transducers 394
Sam Buss, Douglas Cenzer, Mia Minnes, and Jeffrey B. Remmel

A Survey on Universal Computably Enumerable Equivalence Relations 418
Uri Andrews, Serikzhan Badaev, and Andrea Sorbi

Higher Computability

Σ_1^1 in Every Real in a Σ_1^1 Class of Reals Is Σ_1^1 455
Leo Harrington, Richard A. Shore, and Theodore A. Slaman

Turing Degree Theory, c.e. Sets

A Survey of Results on the d-c.e. and n-c.e. Degrees 469
Marat M. Arslanov and Iskander Sh. Kalimullin

There Are No Maximal d.c.e. *wtt*-degrees 479
Guohua Wu and Mars M. Yamaleev

A Rigid Cone in the Truth-Table Degrees with Jump 487
Bjørn Kjos-Hanssen

Asymptotic Density and the Theory of Computability: A Partial Survey. 501
Carl G. Jockusch Jr. and Paul E. Schupp

On Splits of Computably Enumerable Sets 521
Peter A. Cholak

1-Generic Degrees Bounding Minimal Degrees Revisited. 536
C.T. Chong

Nondensity of Double Bubbles in the D.C.E. Degrees 547
*Uri Andrews, Rutger Kuyper, Steffen Lempp, Mariya I. Soskova,
and Mars M. Yamaleev*

On the Strongly Bounded Turing Degrees of the Computably
Enumerable Sets 563
Klaus Ambos-Spies

Permutations of the Integers Induce only the Trivial Automorphism
of the Turing Degrees 599
Bjørn Kjos-Hanssen

Algorithmic Randomness

On the Reals Which Cannot Be Random 611
Liang Yu and Yizheng Zhu

A Note on the Differences of Computably Enumerable Reals 623
George Barmpalias and Andrew Lewis-Pye

Effective Bi-immunity and Randomness. 633
Achilles A. Beros, Mushfeq Khan, and Bjørn Kjos-Hanssen

On Work of Barmpalias and Lewis-Pye: A Derivation on the D.C.E. Reals . . . 644
Joseph S. Miller

Turing Degrees and Muchnik Degrees of Recursively Bounded
DNR Functions. 660
Stephen G. Simpson

Algorithmic Statistics: Forty Years Later 669
Nikolay Vereshchagin and Alexander Shen

Lowness, Randomness, and Computable Analysis	738
<i>André Nies</i>	
Erratum to: There Are No Maximal d.c.e. <i>wtt</i> -degrees	E1
<i>Guohua Wu and Mars M. Yamaleev</i>	
Author Index	755



<http://www.springer.com/978-3-319-50061-4>

Computability and Complexity

Essays Dedicated to Rodney G. Downey on the
Occasion of His 60th Birthday

Day, A.; Fellows, M.; Greenberg, N.; Khousseinov, B.;
Melnikov, A.; Rosamond, F. (Eds.)

2017, XLII, 755 p. 22 illus., Softcover

ISBN: 978-3-319-50061-4