Curriculum Vitae

Valentin E. Brimkov

General Information

Contact Address:
Mathematics Department
Buffalo State College
State University of New York
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Buffalo, NY 14222

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Advanced Degrees

1989 Ph.D., University of Sofia "St. Kliment Ohridski," Bulgaria

1984 M.S., University of Sofia "St. Kliment Ohridski," Bulgaria

Full Time Employments

September 2008 – present, **Professor**
Mathematics Department,
SUNY Buffalo State College, Buffalo, NY

August 2005 – August 2008, **Associate Professor**
Mathematics Department,
SUNY Buffalo State College, Buffalo, NY

2004 – 2005, **Associate Professor**
Department of Computer Science, Mathematics, and Physics,
Fairmont State University, Fairmont, WV, USA

1997 – 2002, **Associate Professor**
Department of Applied Mathematics and Computer Science,
Eastern Mediterranean University, Famagusta, North Cyprus
(instruction in English following the American Educational System)

1996 – **Associate Professor**
1989 – 1996, **Assistant Professor**
Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences, Sofia, Bulgaria

1988 – 1989, **Project Manager**
Center for Accelerated Implementation of Organization-Industrial Systems,
Sofia, Bulgaria

1984 – 1985, **Researcher**
Laboratory of Applied Mathematics,
Bulgarian Academy of Sciences, Plovdiv, Bulgaria

Research Interests

Theoretical Computer Science (digital geometry and topology, mathematical foundations of image analysis, theory of algorithms and complexity), Operations Research (combinatorial optimization, polyhedral combinatorics), Applications of Mathematics to Natural Sciences (mathematical biology and organic chemistry)

Erdös number

= **2** (Erdös – Straight – Brimkov)

Academic Visits

May 2007 – August 2007, ***Associate Member***
ICTP "Abdus Salam" International Center, Trieste, Italy
(Funded by UNESCO, IAEA, and the Italian Government)

May 2006 – July 2006, ***Associate Member***

ICTP "Abdus Salam" International Center, Trieste, Italy
(Funded by UNESCO, IAEA, and the Italian Government)

July 2005, ***Guest Professor***
University of Messina, Sicily, Italy
(Funded by the University of Messina)

June 2004, ***Guest Professor***
University of Messina, Sicily, Italy
(Funded by the University of Messina)

May 2003 – June 2003, ***Associate Member***
ICTP "Abdus Salam" International Center, Trieste, Italy
(Funded by UNESCO, IAEA, and the Italian Government)

May 2002 – July 2002, ***Guest Professor***
University of Poitiers, France
(Funded by the University of Poitiers)

March 2002 – May 2002, ***Associate Member***
ICTP "Abdus Salam" International Center, Trieste, Italy
(Funded by UNESCO, IAEA, and the Italian Government)

May 2002, ***Guest Professor***
Institute of Computational Mathematics
Italian Research Council, Pisa, Italy
(Funded by the Italian Research Council)

December 1995 – July 1997, ***Visiting Professor***
University of Padua, Padua, Italy
(Funded by the University of Padua)

December 1994 – November 1995, ***Guest Professor***
Institute of Computational Mathematics,
Italian Research Council, Pisa, Italy
(Funded by the Italian Research Council – CNR)

June 1993, ***Guest Professor***
Department of Mathematics, University Pierre et Marie Curie, Paris, France
(Funded by TEMPUS Grant of the European Community)

October 1991 – November 1991, ***Guest Professor***
Italian Research Council, Pisa, Italy
(Funded by the Italian Research Council)

April 1991, ***Guest Professor***
Italian Research Council, Pisa, Italy
(Funded by the Italian Research Council)

March 1990 – April 1990, ***Visiting Expert***
Institute of Technical Cybernetics,
Slovak Academy of Sciences, Bratislava, Slovakia
(Funded by the Slovak Academy of Sciences)

July 1985 – July 1988, ***Ph.D. Student***
University of Sofia "St. Kliment Ohridski," Sofia, Bulgaria
Full scholarship from the University of Sofia

Research and Industrial Projects and Contracts

As a PI or co-PI:

- NSF grant "Connect with 'Science': Opportunities in Science, Technology, Engineering and Mathematics" (five years, $500,000), started March 1, 2007

- NSF grant, Science Masters Program: Professional Applied and Computational Mathematics, 3 years, $697,039, started August 1, 2010
- International Project "Space-Efficient Algorithms in Image Processing: Theory and Applications," involving scientists from USA, Japan, France, and Spain. Funded by Shizuoka University, Hamamatsu, Japan , approx. 300,000 Yen, December 2008-March 2009
- International Project "Space and Time Efficient Computation in Image Processing: Theoretical Foundations and Implementation," involving scientists from the USA, Canada, Japan, France, and Spain. Funded by Shizuoka University, Hamamatsu, Japan, approx. 1,000,000 Yen, June 2009 -- March 2010
- Multiagent Approach in Modeling, 1998-2001. Joint project of CNRS (Grenoble) and Institute of Mathematics and Computer Science, Bulgarian Academy of Sciences, Sofia (IMCS-BAS)
- Applications of Computer Science Methods in Scientific Investigations, 1996-1999. Joint project of IMCS-BAS, University "Louis Pasteur" (Strasbourg), University of Marseille (Marseille), University of Torino (Torino), CNUCE-CNR (Pisa), and University of Mining and Geology (Sofia)
- Applications of Artificial Intelligence Methods in the Humanities, 1996-1997. Joint project of IMC-CNR (Pisa), CNUCE-CNR (Pisa), University of Marseille (Marseille), and IMCS-BAS. Funded by UNESCO-ROSTE
- Encoding of Biosystems and other Problems of Computational Biology, 1995-1997. Joint project of IMC-CNR (Pisa) and IMCS-BAS
- Mathematical Methods and Computer Simulation in the Study of Protein Evolution, 1991-1994. Joint project of IMCS-BAS and the Bulgarian Ministry of Science and Education.
- Text File Compression, 1989-1990. Project of the Center for Accelerated Implementation of Organization-Industrial Systems, Sofia (CAI-OIS)
- Algebraic Processor, 1989-1990. Project of CAI-OIS

As a Member of Project Team:

- Senior staff member of a collaborative C-SUMS NSF collaborative grant proposal, together with UB, funded $1,115,687
- International research project funded by Shizuoka University, Hamamatsu, Japan, Approx. $10,000, May 2010 -- March 2011
- Intelligent Software Environments, 1995-1999. Project of IMCS-BAS and the Bulgarian Ministry of Science and Education
- Optimal Algorithms for some Problems of Computational Geometry, 1991-1995. Project of IMCS-BAS and the Bulgarian Ministry of Science and Education
- Algorithmic and Information Complexity of Discrete Combinatorial Problems, 1991-1994. Project of IMCS-BAS and the Bulgarian Ministry of Science and Education
- Expert Computing Systems, 1987-1989. Joint project of the Institute of Elaboration and Transition of Information (Russian Academy of Sciences, Moscow), and CAI-OIS
- Efficiency, Accuracy, and Complexity of Algorithms in Discrete Optimization, 1987-1989. Joint project of the academies of sciences of the USSR, Poland, East Germany, and Bulgaria, State University of Byelorussia, and Technical University of Vienna
- Distribution of Resources in Multiprocessor Systems, 1990. Project of the Institute of Technical Cybernetics, Slovak Academy of Sciences

- Mathematical Methods for Optimization, 1987-1989. Project of IMCS-BAS and the Bulgarian Ministry of Science and Education
- Efficient Algorithms for Numerical Analysis and Optimization of High-Performance Systems, 1987-1989. Project of IMCS-BAS and the Bulgarian Ministry of Science and Education

Conferences

- **General co-Chair** of the 15th International Workshop on Combinatorial Image Analysis, Austin, TX, 2012
- **General co-Chair** of the 2nd International Symposium on Computational Modeling of Objects Represented in Images (CompIMAGE) , Buffalo, May 2010
- **General Chair** of the 12th International Workshop on Combinatorial Image Analysis, Buffalo, April 2008
- **Chair** of the International UNESCO Workshop "Applications of Artificial Intelligence Methods in the Humanities," Sozopol, September 1996. Sponsored by UNESCO
- **Co-Chair** of a special track on Discrete and Computational Geometry, 4th International Symposium on Visual Computing, December 2008, Las Vegas, Nevada
- **Chair** of a special track on Discrete and Computational Geometry, 2nd International Symposium on Visual Computing, November 2006, Lake Tahoe, Nevada
- **Co-Chair** of the International Workshop on Digital Geometry, Messina, November 2005
- **Contribution** to over 100 conferences, symposia, congresses, and workshops

Invited Talks

IWCIA 2011 (Madrid, Spain) – Keynote Speaker; VipIMAGE (Porto, Portugal) – Keynote speaker; CompIMAGE'06 (Coimbra, Portugal) – Keynote speaker; Seminar of Research Institute of Electronics, Shizuoka University, Japan, 2010; COCID "Training Faculty to Support Scholarly Work and Undergraduate Research with (High Performance) Computing Tools;" Mathematics Seminar of the International Center of Theoretical Physics (Trieste, Italy); CUNY Graduate Center (NYC); Rutgers University (Piscataway) – two talks; Discrete Geometry Workshop (Messina, Italy) – five talks; Kettering University (Flint); University of Sheffield (UK); University of Leeds (UK); University of Kent (UK); University of Messina (Italy) – two talks; Inst. of Computational Mathematics (CNR, Pisa, Italy) – three talks; Institute of Information Processing (IEI-CNR, Pisa, Italy); IEEE Seminar at Eastern Mediterranean University (Famagusta, North Cyprus), and others

Member of Editorial Boards

- Honorary Editorial Board of the International Journal "Reports on Medical Imaging," *Dove Medical Press*
- International Journal for Computation Vision and Biomechanics, *Serials Publishing*
- Editor, International Journal of Imaging, *CESER Publishing*

Guest-Editor of International Journals

- Pattern Recognition, *Elsevier*
- Graphical Models, *Elsevier*
- Theoretical Computer Science, *Elsevier*
- Discrete Applied Mathematics, *Elsevier*
- International Journal of Imaging Systems and Technology, *Wiley* (two issues)
- International Journal of Shape Modeling (*World Scientific*)
- International Journal of Computer Mathematics (*Taylor & Frances*)

Steering Committee Member

- 2nd International Symposium "Computational Modeling of Objects Presented in Images", CompIMAGE'10, 2010
- 12th International Workshop on Combinatorial Image Analysis (IWCIA), 2008
- 13th International Workshop on Combinatorial Image Analysis (IWCIA), 2009
- 14th International Workshop on Combinatorial Image Analysis (IWCIA), 2011

Member of Conference Program Committees

- International Conference on Mass-Data Analysis of Images and Signals 2010
- International Symposium on Visual Computing 2010
- International Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE) 2009
- International Workshop on Medical Imaging Systems EUROMEDIA, Bruges, Belgium 2009
- International Conference on Imaging Theory and Applications, IMAGAPP 2009, Lisbon, Portugal 2009
- International Conference on Mass-Data Analysis of Images and Signals, 2009
- Review Committee, International Conference Discrete Geometry for Computer Imagery 2009
- International Symposium on Visual Computing 2009
- International Workshop on Combinatorial Image Analysis 2009
- International Conference Discrete Geometry for Computer Imagery 2008
- International Symposium on Visual Computing 2008
- IEEE Computer and Information Technology 2008
- International Symposium on Visual Computing 2007
- IEEE Computer and Information Technology 2007
- International Conference Discrete Geometry for Computer Imagery 2006
- International Workshop on Combinatorial Image Analysis 2006
- International Symposium on Visual Computing 2006
- International Conference Discrete Geometry for Computer Imagery 2005

Referee for

Journals: Theoretical Computer Science (Elsevier), Graphical Models (Elsevier), Discrete Mathematics (Elsevier), Discrete Applied Mathematics (Elsevier), Computers and Mathematics with Applications (Elsevier), Image and Vision Computing (Elsevier), Pattern Recognition (Elsevier), Pattern Recognition Letters (Elsevier), IEEE Transactions on Pattern Analysis and Machine Intelligence, Information Sciences (Elsevier), Computer Graphics Forum (Blackwell), International Journal of Imaging systems and Technology (Wiley), Electronic Letters on Computer Vision and Image Analysis (ELCVIA), International Journal of Tomography and Statistics (CESER), Acta Applicandae Mathematicae (Springer), International Journal for Computational Vision and Biomechanics (Serials Publishing), and others

Books: Klette, R., A. Rosenfeld, "Digital Geometry" (Morgan Kaufman), 2004;
Five chapters of "Geometric Properties from Incomplete Data," R. Klette (Ed.) Kluwer, 2004

Conferences: multiple issues of IEEE CIT, DGCI, IWCIA, ISVC, CompIMAGE, VipIMAGE, EUROMEDIA, MDA, and others

Reviewer for

Mathematical Reviews of the AMS (since 1989)

Professional Affiliations (current and past)

- American Mathematical Society
- Technical Committee on Discrete Geometry, International Association on Pattern Recognition
- International Federation of Operational Research Societies

- European Coordinating Committee of Artificial Intelligence
- Union of Automation and Computer Science
- Union of Bulgarian Scientists
- Union of Bulgarian Mathematicians

Awards and Honors

- Wilkes Award of the British Computer Society for 2005
- SUNY Chancellor's Award for Research and Creative Activities 2012
- The President's Award for Excellence in Research, Scholarship, and Creativity at SUNY Buffalo State College (for Academic Year 2008/09)
- Honorable Guest Professor of Shizuoka University (Hamamatsu, Japan) – since 2008
- Biographical citation in Marquis "Who is Who in the World," 11th edition

Bibliography

Edited books

1. Brimkov, V.E., R.P. Barneva (Eds.), *Digital Geometry Algorithms. Theoretical Foundations and Applications to Computational Imaging, Springer*, Dordrecht Heidelberg New York London, 2012
2. Reneta P. Barneva, Valentin E. Brimkov, Jake K. Aggarwal (Eds.), *Combinatorial Image Analysis*, Springer, LNCS 7655, 2012
3. Agarwal, J.K., R.P. Barneva, V.E. Brimkov, K. Koroutchev, E. Korucheva (Eds.), *Combinatorial Image Analysis*, Springer, Berlin Heidelberg New York, LNCS 6636, 2011
4. Barneva, R.P., V.E. Brimkov, K. Koroutchev, E. Korucheva (Eds.), *Advances in Image Analysis and Applications*, Research Publishing, Singapore Chennai, 2011
5. Barneva, R.P., V.E. Brimkov, H.A. Hauptman, R.M. Natal Jorje, J.M.R.S. Tavares (Eds.), *Computational Modeling of Objects Represented in Images*, ***Lecture Notes in Computer Science,*** No 6026, Springer, Berlin Heidelberg, 2010
6. Barneva, R.P., V.E. Brimkov, R.M. Natal Jorje, J.M.R.S. Tavares (Eds.), *Object Modeling, Algorithms and Applications*, Research Publishing, Singapore Chennai, 2010
7. Brimkov, V.E., R.P. Barneva, H. Hauptman (Eds.), *Combinatorial Image Analysis*, Springer, ***Lecture Notes in Computer Science,*** No 4958, Berlin Heidelberg, 2008
8. Barneva, R.P., V.E. Brimkov (Eds.), *Image Analysis: From Theory to Applications****, Research Publishing Services***, Singapore Chennai, 2008
9. Brimkov, V. E., G. Nordo (Eds.), *Digital Geometry Workshop*, University of Messina, Messina, Italy, 2005
10. Brimkov, V.E. (Ed.), *Artificial Intelligence and Humanities*, UNESCO-BAS Cooperation Program, ***Rokada Print***, Sofia 1996

Journal papers

1. Brimkov, V.E., A. Leach, J. Wu, M. Mastroianni, Approximation algorithms for a geometric set cover problem, ***Discrete Applied Mathematics*** (Elsevier), **160**(7-8) 1039-1052 (2012)
2. Brimkov, V.E., A. Leach, M. Mastroianni, J. Wu, Guarding a set of line segments in the plane, ***Theoretical Computer Science*** (Elsevier), **412**(15) (2011) 1313-1324
3. Brimkov, V.E., R.P. Barneva, Computational modeling of objects represented in images, ***Graphical Models*** (Elsevier) **73**(6) 311-312 (2011)
4. Brimkov, V.E., R. P. Barneva, B. Brimkov, Connected distance-based rasterization of objects in arbitrary dimension, ***Graphical Models*** (Elsevier) **73**(6) 323-334 (2011)
5. Brimkov, V.E., A. Leach, J. Wu, M. Mastroianni, On the approximability of a geometric set cover problem, ***Electronic Colloquium on Computational Complexity***, Vol. **18**, rep. 19 (2011)
6. Brimkov, V.E., R.P. Barneva, P. Wiederhold, Theoretical Computer Science Issues in Image Analysis and Processing - Preface, ***Theoretical Computer Science*** (Elsevier) **412**(15) (2011) 1299-1300
7. Barneva, R.P., V.E. Brimkov, P. Wiederhold, Combinatorial Problems and Algorithms in Image Analysis (Guest Editorial), ***International Journal of Imaging Systems and Technology*** (Wiley) **21**(1) (2011) 1-2
8. Brimkov, V.E., R.P. Barneva, Combinatorial approach to image analysis, ***Discrete Applied Mathematics*** (Elsevier) **157**(16) (2009) 3359-3361

9. Asano, T., V.E. Brimkov, R.P. Barneva, Some theoretical challenges in digital geometry: A perspective, ***Discrete Applied Mathematics*** (Elsevier) **157**(16) (2009) 3362-3371

10. Kanev, K., R.P. Barneva, V.E. Brimkov, D. Kaneva, Interactive printouts integrating multilingual multimedia and sign language electronic resources, ***Journal of Educational Technology Systems*** (Baywood Pu. Co., Inc.) **38**(2) (2009-2010) 123-143

11. Brimkov, V.E., R.P. Barneva, Advances in combinatorial image analysis, ***Pattern Recognition*** (Elsevier) **42**(8) (2009) 1623-1625

12. Brimkov, V.E., Digitization scheme that assures faithful reconstruction of plane figures, ***Pattern Recognition*** (Elsevier) **42**(8) (2009) 1637-1649

13. Brimkov, V.E., Formulas for the number of *(n-2)*-gaps of binary objects in arbitrary dimension, ***Discrete Applied Mathematics*** (Elsevier) **157**(3) (2009) 452-463

14. Barneva, R.P., V.E. Brimkov, K. Kanev, Combining ubiquitous direction-sensitive digitizing with a multimedia electronic dictionary for enhanced understanding, ***International Journal of Imaging Systems and Technology*** (Wiley) **19** (2) (2009) 39-49

15. Barneva, R.P., V.E. Brimkov, Contemporary challenges in combinatorial image analysis (Editorial), ***International Journal of Imaging Systems and Technology*** (Wiley) **19** (2) (2009) 38-39

16. Brimkov, V.E., R. Barneva, Applications of digital geometry to surface recognition, ***International Journal for Computational Vision and Biomechanics*** **(**Serials Publishing) **1**(2) (2008) 163-172

17. Brimkov, V.E., R.P. Barneva, Discrete and computational geometry and their applications in visual computing, ***International Journal of Shape Modeling*** (World Scientific) **14**(2) (2008) v-vii

18. Brimkov, V.E., G. Nordo, R.P. Barneva, A. Maimone, Genus and dimension of digital images and their time- and space-efficient computation, ***International Journal of Shape Modeling*** (World Scientific) **14**(2) (2008) 147-168

19. Brimkov, V.E., R. Barneva, On the polyhedral complexity of the integer points in a hyperball, ***Theoretical Computer Science*** (Elsevier) **157** (2008) 24-30

20. Brimkov, V.E., R. Klette, Border and surface tracing – theoretical foundations, ***IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*** **30**(4) (2008) 577-590

21. Brimkov, V.E., R. Barneva, Applications of digital geometry to surface recognition, ***International Journal for Computational Vision and Biomechanics*** **(**Serials Publishing) **1**(2) (2008) 163-172

22. Brimkov, V.E., Algorithmic and explicit determination of the Lovasz number for certain circulant graphs, ***Discrete Applied Mathematics*** (Elsevier) **155** (2007) 1812-1825

23. Brimkov, V.E., D. Coeurjolly, R. Klette, Digital planarity – a review, ***Discrete Applied Mathematics*** (Elsevier) **155** (2007) 468-495

24. Brimkov, V.E., S.S. Dantchev, Digital hyperplane recognition in arbitrary fixed dimension within an algebraic computation model, ***Image and Vision Computing*** (Elsevier) **25** (2007) 1631-1643

25. Brimkov, V.E., S.S. Dantchev, Integer programming in an algebraic computation model, ***Advanced Studies in Contemporary Mathematics*** (Gu-Duk Pu. Co.), **13** (1) (2006) 5-20

26. Apostolico, A., V.E. Brimkov, Optimal discovery of repetitions in 2D, ***Discrete Applied Mathematics*** **(**Elsevier) **151** (2005) 5-20

27. Brimkov, V.E., R.P. Barneva, Plane digitization and related combinatorial problems, ***Discrete Applied Mathematics*** (Elsevier) **147** (2005) 169-186

28. Brimkov, V.E., R. Barneva, Analytical honeycomb geometry for raster and volume graphics, ***The Computer Journal*** (Oxford University Press) **48** (2) (2005) 180-199

29. Brimkov, V.E., R.P.Barneva, Exact image reconstruction from a single projection through real computation, ***Electronic Notes in Discrete Mathematics*** **(**Elsevier) **20** (2005), 233-246

30. Brimkov, V.E., Clique, chromatic and Lovasz number of certain circulant graphs, ***Electronic Notes in Discrete Mathematic*** (Elsevier) **17** (2005) 63-67

31. Brimkov, V.E., R.P. Barneva, Connectivity of discrete planes, ***Theoretical Computer Science*** (Elsevier) **319**(1-3) (2004) 203-227

32. Brimkov, V.E., B. Codenotti, V. Crespi, R. Barneva, M. Leoncini, Computation of the Lovasz theta function for circulant graphs, ***Electronic Colloquium on Computational Complexity*** **10** (81) (2003) http://www.eccc.uni-trier.de/eccc/

33. Brimkov, V.E., R.P. Barneva, Graceful planes and lines, ***Theoretical Computer Science*** (Elsevier) **283** (2002) 151-170

34. Brimkov, V.E., Optimal parallel searching an array for certain repetitions, ***Electronic Notes in Discrete Mathematics*** (Elsevier) **12** (2003) 82-93

35. Brimkov, V.E., S. Dantchev, An alternative to Ben-Or's lower bound for the knapsack problem complexity, ***Applied Mathematics Letters*** (Pergamon Press) **15** (2002) 187-191

36. Brimkov, V.E., E. Andres, R.P. Barneva, Object discretizations in higher dimensions, ***Pattern Recognition Letters*** (Elsevier) **23** (6) (2002) 623-636

37. Barneva, R.P., V.E. Brimkov, Virtual visits of North Cyprus, ***International Journal Information Theories and Applications*** **9** (5) (2002) 189-198

38. Brimkov, V.E., R. Barneva, Gradient elements of the knapsack polytope, ***Calcolo (Quarterly of CNR)*** (Springer) **38** (1) (2001) 49-66

39. Brimkov, V.E., Optimally fast CRCW-PRAM testing 2D-arrays for existence of repetitive patterns, ***International Journal of Pattern Recognition and Artificial Intelligence*** (World Scientific) **15** (7) (2001) 1167-1182

40. Brimkov, V.E., R. Barneva, "Honeycomb" vs square and cubic models, ***Electronic Notes in Theoretical Computer Science*** (Elsevier) **46** (2001), URL: http://www.elsevier.nl/locate/entcs/volume46.html

41. Apostolico, A., V.E. Brimkov, Fibonacci arrays and their two-dimensional repetitions, ***Theoretical Computer Science*** (Elsevier) **237** (1-2) (2000) 263-273

42. Barneva, R.P., V.E. Brimkov, Ph. Nehlig, Thin discrete triangular meshes, ***Theoretical Computer Science*** (Elsevier) **246** (1-2) (2000) 73-105

43. Brimkov, V.E., S.S. Dantchev, On the algebraic complexity of integer programming, ***Electronic Colloquium on Computational Complexity*** **7** (17) (2000) http://www.eccc.uni-trier.de/eccc/

44. Barneva, R., V. Brimkov, Y. Ogmen, An interface for self-evaluation for distance learning courses, ***International Journal Information Theories and Applications*** **7** (1) (2000) 22-27

45. Brimkov, V.E., S.S. Danchev, M. Leoncini, Tight complexity bounds for the two-dimensional real knapsack problem, ***Calcolo (Quarterly of CNR)*** (Springer) **36** (2) (1999) 123-128

46. Brimkov, V.E., S.S. Dantchev, Lower bounds, "pseudopolynomial" and approximation algorithms for the knapsack problem with real coefficients, ***Electronic Colloquium on Computational Complexity***, **5** (15) (1998) http://www.eccc.uni-trier.de/eccc/

47. Brimkov, V.E., S.S. Danchev, Real data - integer solution problems within the Blum-Shub-Smale computational model, ***Journal of Complexity*** (Academic Press) **13** (1997) 279-300

48. Brimkov, V.E., B. Codenotti, M. Leoncini, G. Resta, Strong NP-completeness of a matrix similarity problem, ***Theoretical Computer Science*** (Elsevier) **165** (1996) 483-490

49. Brimkov, V.E., R.P. Barneva, Convexity in graphs, incremental search, and applications, ***International Journal Information Theories and Applications*** **3** (9) (1995) 9-20

50. Brimkov, V.E., R.P. Barneva, R.V. Miryanov, A variant of the motion planning problem in a graph, ***International Journal Information Theories and Applications*** **3** (8) (1995) 16-22

51. Brimkov, V.E., R.P. Barneva, R.V. Miryanov, Pursuit in a lattice, ***International Journal Information Theories and Applications*** **3** (6) (1995) 10-17

52. Brimkov, V.E., A quasi-polynomial algorithm for the knapsack problem, ***Yugoslav Journal of Operations Research*** **4** (2) (1994) 149-157

53. Ivanov, O.Ch., V.I. Christov, V.E. Brimkov, R.P. Barneva, Computer simulation of genetic code evolution, ***Comptes rendus de l'Academie bulgare des Sciences*** **47** (11) (1994) 41-44

54. Ivanov, O.Ch., V.E. Brimkov, R.P. Barneva, Computer-aided investigation of the amino acid preference in bonding of exons and introns, ***Comptes rendus de l'Academie bulgare des Sciences*** **47** (8) (1994) 49-52

55. Ivanov, O.Ch., V.E. Brimkov, R.P. Barneva, Computer-aided investigation of the amino acid periodicity of exons and introns, ***Comptes rendus de l'Academie bulgare des Sciences*** **47** (1) (1994) 65-68

56. Barneva, R.P., V.E. Brimkov, SUPER - a system for visualization of objects presented by three-dimensional data, ***Annual of the University of Mining and Geology*** **40**, Part 3 (1994) 63-66

57. Ivanov, O.Ch., V.E. Brimkov, R.P. Barneva, Comparative study of exon and intron amino acid composition in beta-hemoglobin gene, ***Comptes rendus de l'Academie bulgare des Sciences*** **46** (9) (1993) 61-64

58. Ivanov, O.Ch., V.E. Brimkov, P.B. Milanov, Computer simulation of protein evolution on nucleic level, ***Comptes rendus de l'Academie bulgare des Sciences*** **45** (11) (1992) 35-38

59. Brimkov, V.E., A polynomial algorithm for solving a large subclass of linear Diophantine equations in non-negative integers, ***Comptes rendus de l'Academie bulgare des Sciences*** **41** (11) (1988) 33-35

60. Brimkov, V.E., New upper bounds for the number of the knapsack polytope vertices, ***Annual of the University of Sofia*** **81** (1) (1987) 143-151

61. Milanov, P.B., V.E. Brimkov, On the knapsack problem, ***Comptes rendus de l'Academie bulgare des Sciences*** **40** (3) (1987) 25-27

Book chapters

1. Brimkov, V.E., A. Leach, M. Mastroianni, J. Wu, Complexity and approximability issues in combinatorial image analysis, in J. Aggarwal et al. (eds.), *Combinatorial Image Analysis,* ***Lecture Notes in Computer Science*** Vol. 6636, Springer, 2011, 4-8

2. Brimkov, V.E., A. Leach, M. Mastroianni, J. Wu, Experimental studies on approximation algorithms for guarding sets of line segments, In G. Bebis et al. (Eds.), ISVC 2010, Part I, ***Lecture Notes in Computer Science*** Vol. 6453, Springer, Berlin Heidelberg (2010) 592-601

3. Brimkov, V.E., Connectedness of Offset Digitizations in Higher Dimensions, ***Lecture Notes in Computer Science*** Vol. 6026, Springer, Berlin Heidelberg (2010) 36-46

4. Brimkov, V.E., R.P. Barneva, Digital Stars and Visibility of Digital Objects, Springer, Berlin Heidelberg, ***Lecture Notes in Computer Science*** Vol. 6026, Springer, Berlin Heidelberg (2010) 11-23

5. Brimkov, V.E., R.P. Barneva, B. Brimkov, Minimal offsets that guarantee maximal or minimal connectivity of digital Curves in nD, in Brlek et al. (Eds.), *Discrete Geometry for Computer Imagery*, Springer, ***Lecture Notes in Computer Science*** Vol. 5810, Springer, Berlin Heidelberg (2009) 337-349

6. Brimkov, V.E, On the convex hull of the integer points in a bi-circular region, ***Lecture Notes in Computer Science*** Vol. 5852, Springer, Berlin Heidelberg (2009) 16-29

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