CONTENTS

TAO-MING WANG, CHENG-CHANG YANG, LIH-HSING HSU, EDDIE CHENG: Infinitely many equivalent versions of the graceful tree conjecture | 1–12

LIANCUI ZUO, SHENGJIE HE, BING XUE: The linear \((n - 1)\)-arboricity of Cartesian product graphs | 13–28

STEPHEN KIRKLAND, SIMONE SEVERINI: \(\alpha\)-Kuramoto partitions from the frustrated Kuramoto model generalise equitable partitions | 29–38

S. BARIK, R. B. BAPAT, S. PATI: On the Laplacian spectra of product graphs | 39–58

J. W. SANDER, T. SANDER: On So's conjecture for integral circulant graphs | 59–72

DANIEL KHOSHNOUDIRAD: Farey lines defining Farey diagrams and application to some discrete structures | 73–84

CRISTINA ARAÚZ, ÁNGELES CARMONA, ANDRÉS M. ENCINAS: Dirichlet-to-Robin maps on finite networks | 85–102

SOON-YEONG CHUNG, JAE-HWANG LEE: Blow-up for discrete reaction-diffusion equations on networks | 103–119

JAN ČERMÁK, JIŘÍ JÁNSKÝ, PETR TOMÁŠEK: Two types of stability conditions for linear delay difference equations | 120–138

FERHAN M. ATICI, MELTEM UYANIK: Analysis of discrete fractional operators | 139–149

(Continues on inside back cover)
Mohamed Abdalla Darwish, Kishin Sadarangani: Existence of solutions for hybrid fractional pantograph equations | 150–167

Dinh Thanh Duc, Nguyen Du Vi Nhan: Norm inequalities for new convolutions and their applications | 168–179

Daniel Lee: Complete solution to seven-point schemes of discrete anisotropic Laplacian on regular hexagons | 180–197
Bulletin of the Institute of Mathematics
Academia Sinica New Series
Volume 10, Number 2, June 2015

Contents

Preface ................................................................................................................................. i

Global existence theory for a general class of hyperbolic balance laws
  Yanni Zeng .................................................................................................................. 143

On the evolution of the empirical measure for the Hard-Sphere dynamics
  M. Pulvirenti and S. Simonella .................................................................................. 171

The steady Boltzmann and Navier-Stokes equations
  Kazuo Aoki, François Golse and Shingo Kosuge .................................................. 205

The one way linearized water wave equations
  G. I. Jennings, S. Karni and J. Rauch ...................................................................... 259
Bulletin of the Institute of Mathematics
Academia Sinica New Series
Volume 10, Number 3, September 2015

Contents

Preface .................................................................................................................................................. i

Critical exponents for the Cauchy problem to the system of wave equations with time or space dependent damping
Kenji Nishihara and Yuta Wakasugi ........................................................................ 283

The Vlasov-Poisson-Landau system with a uniform ionic background and algebraic decay initial perturbation
Yuanjie Lei, Ling Wan and Huijiang Zhao ................................................................. 311

Finite energy global solutions to a two-fluid model arising in superfluidity
Paolo Antonelli and Pierangelo Marcati ......................................................................... 349

Eckmann boundary layer expansions of Navier-Stokes equations with rotation
Shengbo Gong, Yan Guo and Ya-Guang Wang ......................................................... 375

Self-similar solutions of 2-D compressible Euler equations and mixed-type problems
Jiequan Li ........................................................................................................................................ 393

Second-order Knudsen-layer analysis for the generalized slip-flow theory I
Masanari Hattori and Shigeru Takata ........................................................................ 423
ALGEBRA AND COMBINATORICS
Bína V., Přibil J.: Note on enumeration of labeled split graphs ........................................... 133
Leppälä E., Niemenmaa M.: On finite commutative loops which are centrally nilpotent .......................................................... 139

ANALYSIS
Damyanov B.: Results on generalized models and singular products of distributions in the Colombeau algebra \( \mathcal{G}(\mathbb{R}) \) ........................................................................ 145
Herzog G., Kunstmann P.Chr.: Universally divergent Fourier series via Landau's extremal functions .................................................. 159

DIFFERENTIAL EQUATIONS
Benaissa A., Miloudi M., Mokhtari M.: Global existence and energy decay of solutions to a Bresse system with delay terms ............................................ 169
Jebari R., Boukricha A.: Positive solutions for a system of third-order differential equation with multi-point and integral conditions ........................................... 187

TOPOLOGY
Chinen N.: Symmetric products of the Euclidean spaces and the spheres ....... 209
Dow A.: A new Lindelöf space with points \( G_\delta \) ............................................................... 223
García-Ferreira S., Ortiz-Castillo Y.F.: The subspace of weak \( P \)-points of \( N^* \) ........................................................................ 231
van Mill J.: On nowhere first-countable compact spaces with countable \( \pi \)-weight ........................................................................ 237
Rojas-Hernández R.: \( \Sigma_s \)-products revisited ................................................................. 243
Starý J.: Coherent ultrafilters and nonhomogeneity ................................................. 257

CMUCAA 56,2, 133–264 (June 2015)
ISSN 0010–2628
<table>
<thead>
<tr>
<th>ENHAVO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol.58  2015  N-ro 1</td>
</tr>
</tbody>
</table>

WATANABE, T., Global Existence and Decay Estimates for Quasilinear Wave Equations with Nonuniform Dissipative Term ........................................... 1

MAKINO, T., On Spherically Symmetric Motions of the Atmosphere Surrounding a Planet Governed by the Compressible Euler Equations........................................... 43

MATSUNAGA, H., MURAKAMI, S., NAGABUCHI, Y. and VAN MINH, N., Center Manifold Theorem and Stability for Integral Equations with Infinite Delay ...................... 87

CONTENTS

R. TABATA: The values of the generalized matrix functions of 3×3 matrices ............................... 1

J. AGLER and J. E. MCCARTHY: Operator theory and the Oka extension theorem ......................................................... 9

O. OMEL'CHENKO and L. RECKE: Existence, local uniqueness and asymptotic approximation of spike solutions to singularly perturbed elliptic problems ........................................................................... 35

S. IMORI: Consistent selection of working correlation structure in GEE analysis based on Stein's loss function .................................................................................................................. 91

A. KUBO: Geometry of homogeneous polar foliations of complex hyperbolic spaces ............................................. 109
CONTENTS

A semi-group formula for the Riesz potentials
   By Takahide Kurokawa ........................................ 1–27

On a second order rational systems of difference equations
   By N. Touafek and E. M. Elsayed ................................. 29–45

Cohomology of wheels on toric varieties
   By Alastair Craw and Alexander Quintero Vélez ............ 47–79

On topology of some Riemannian manifolds of negative curvature with a
compact Lie group of isometries
   By R. Mirzaie .................................................. 81–89

On coretractable modules
   By Derya Keskin Tutüncü and Berke Kaleboğaz .............. 91–99

On the variational problem associated with standard differential systems
   By Noboru Tanaka .............................................. 101–164
CONTENTS

A curve of genus 5 having 24 Weierstrass points of weight 5
   By Takao Kato .......................................................... 165–173

Minimal unfolded regions of a convex hull and parallel bodies
   By Jun O’Hara .............................................................. 175–183

Boundedness of maximal operators and Sobolev’s theorem
   for non-homogeneous central Morrey spaces of variable exponent
   By Yoshihiro Mizuta, Takao Ohno and Tetsu Shimomura .... 185–201

Bi-flows on a network
   By Hisayasu Kurata and Maretsugu Yamasaki .............. 203–220

Projection of generic 1 and 2-parameter families of space curves
   By Fabio Scalco Dias .................................................. 221–250

On the indices of minimal orbits of Hermann actions
   By Naoyuki Koike ...................................................... 251–275

Finding numerically Newhouse sinks near a homoclinic tangency
   and investigation of their chaotic transients
   By Takayuki Yamaguchi .............................................. 277–312
TECNOLOGIA

62 Parcerias
Oito empresas integram-se ao esforço para desenvolver componentes da fonte de luz sincrotron Sirius

67 Agricultura
Novos equipamentos possibilitam aumento na eficiência do uso da água no campo em mais de 30%

70 Pecuária
Uso de resíduos da fabricação de açúcar na alimentação de suínos diminui teor de gordura da carne

72 Pesquisa empresarial
Mecron desenvolve soluções tecnológicas avançadas para as áreas militar e espacial

HUMANIDADES

76 Comunicação
Júlio Abramczky e José Hamilton Ribeiro escrevem há 60 anos sobre temas científicos, médicos e ambientais – e nem pensam em parar

82 História
Livro sobre a Justiça em São Paulo na época colonial descreve as raízes dos desmandos públicos no Brasil

SEÇÕES
3 Fotolab
5 Cartas
6 On-line
7 Carta da editora
8 Boas práticas
9 Dados e projetos
10 Estratégias
12 Tecnociência
86 Resenhas
88 Memória
94 Arte
96 Carreiras
98 Classificados
CAPA
16 Avanços na tecnologia do cotidiano dependerão cada vez mais do controle microscópico da luz
20 Inicialmente considerado uma solução à procura de um problema, laser ganha cada vez mais espaço na área da saúde

ENTREVISTA
24 Lino Barañao, ministro argentino da Ciência, quer ampliar parcerias com o Brasil e diz que o exemplo de São Paulo pode inspirar empresas de seu país a investir mais em pesquisa

POLÍTICA CIENTÍFICA E TECNOLÓGICA
29 Matemática
Flexibilidade acadêmica e internacionalização fazem parte da equação de sucesso do Impa

36 Cooperação
Simpósios FAPESP Week inspiram pesquisadores paulistas a criar parcerias internacionais de alto nível

40 Colaboração
Centro Paulista de Pesquisa em Bioenergia contrata pesquisadores para ampliar base científica na área

42 Inovação
Plataforma brasileira que fornece moldes de roupas sob medida vence a ImagineCup, da Microsoft

CIÊNCIA
46 Entrevista
Diretor do Fermilab espera que pesquisadores brasileiros participem de megaexperimento sobre neutrinos

50 Físico-química
Confinada em nanotubos a -69°C, água apresenta simultaneamente duas densidades distintas

52 Geomorfologia
Análises de grãos de quartzo em planícies fluviárias revelam processos recentes de transformação do relevo

56 Biologia molecular
Pesquisadores brasileiros afirmam que o código genético é similar ao funcionamento do sistema digital

60 Zoologia
Cães ajudam a definir áreas de ocorrência de cervos e fazeiros para extração do DNA

64 Botânica
A genética, a fisiologia e a ecologia indicam o que fazer para preservar o faveiro-de-wilson

TECNOLOGIA
66 Engenharia sanitária
Reúso da água a partir do tratamento de efluentes é alternativa para ajudar no combate à crise de abastecimento

70 Pesquisa empresarial
GranBio investe em P&D para superar os desafios da segunda geração de etanol

74 Astrofísica
Universidades e empresa do interior paulista desenvolvem braço mecânico para telescópio que serão instalados no maior observatório de raios gama

78 Automação
Sistemas computacionais, sensores, lasers e radares garantem a autonomia de carros e caminhões

HUMANIDADES
82 Comunicação
Relacionamento entre cientistas e jornalistas melhorou, mas ainda é possível avançar

86 Ciência política
Estudo aponta aumento do desconhecimento sobre o que é o sistema democrático

SEÇÕES
3 Fotolab
5 Cartas
6 On-line
7 Carta da editora
8 Dados e projetos
9 Boas práticas
10 Estratégias
12 Tecnociência
90 Memória
92 Arte
94 Carreiras
96 Resenhas
99 Classificados
PAPERS Communicated: —

R. OHNO: An extension of necessary and sufficient conditions for concave functions 1
G. YAMASHITA: A simple proof of convolution identities of Bernoulli numbers 5
Y. SASAKI: Auxiliary differential polynomials for the first Painlevé hierarchy 7
T. TAKEMURA and M. TOMISAKI: Asymptotic behavior of Lévy measure density
    corresponding to inverse local time 9

Proceedings at the 1084th General Meeting 1

Notice to Authors
# CONTENTS

Papers Communicated:  

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.-J. Deng</td>
<td>A note on the Diophantine equation (x^2 + q^m = c^{2n})</td>
<td>15</td>
</tr>
<tr>
<td>E. Bernardi and T. Nishitani</td>
<td>Counterexamples to (C^\infty) well posedness for some hyperbolic operators with triple characteristics</td>
<td>19</td>
</tr>
<tr>
<td>D. Marques and J. Ramirez</td>
<td>On transcendental analytic functions mapping an uncountable class of (U)-numbers into Liouville numbers</td>
<td>25</td>
</tr>
<tr>
<td>Y. Morita</td>
<td>Semisimple symmetric spaces without compact manifolds locally modelled thereon</td>
<td>29</td>
</tr>
</tbody>
</table>

Proceedings at the 1085th General Meeting | 111 |

Notice to Authors
PAPERS Communicated:——

A. OŚKOWSKI: Weighted weak-type inequalities for some fractional integral operators ................................................................. 35
A. HOSHI: On Noether’s problem for cyclic groups of prime order ................................................................. 30

Proceedings at the 1086th General Meeting .................................................. V
A wording Ceremony of the Japan Academy Medal ...................................... VII
Notice to Authors
PROCEEDINGS OF THE JAPAN ACADEMY

SERIES A
MATHEMATICAL SCIENCES

CONTENTS

Papers Communicated:—

H. TAMURA: Aharonov-Bohm effect in resonances for scattering by three solenoids 45
Y. ŌDAKA: Invariants of varieties and singularities inspired by Kähler-Einstein problems 50

Proceedings at the 1087th General Meeting ........................................ IX

Notice to Authors
Papers Communicated:

P. K. RAI: On commuting automorphisms of finite $p$-groups .......................... 57
N. RAMACHANDRAN: A note on the Bloch-Tamagawa space and Selmer groups .... 61
Y. BIBILO and G. FILIPUK: Middle convolution and non-Schlesinger deformations 66
A. SASAKI: Admissible representations, multiplicity-free representations and visible actions on non-tube type Hermitian symmetric spaces .......................... 70

Proceedings at the 1088th General Meeting .................................................. XI

Notice to Authors
PAPERS COMMUNICATED:

K. AOMOTO and Y. MACHIDA: Some problems of hypergeometric integrals associated with hypersphere arrangement ........................................ 77
T. KIKUTA: Remark on Sturm bounds for Siegel modular forms of degree 2 .... 82
R. DAHER and M. EL HAMMA: Generalized Bessel transform of $(\beta, \gamma)$-generalized Bessel Lipschitz functions ........................................ 85
K. WATANABE: Fano manifolds with nef tangent bundle and large Picard number 89

PROCEEDINGS AT THE 1089TH GENERAL MEETING ................................ XIII

AWARD OF PRIZES ................................................................. XV

NOTICE TO AUTHORS
Vol. 50, Mar. 2015

The Set of Solutions of a System of Linear Partial Differential Equations
Toyohiro Akamatsu and Junzo Watanabe 1

Asymptotic Behavior of Solutions to Damped Wave Equation with Derivative Nonlinear Terms
Takashi Narazaki 19

Multiple Comparison for Checking Correlations among Several Normal Random Variables
Tsunehisa Iwada and Hideyuki Douke 37

On the Possibility of Defibrillation on the Basis of Application of Frequency Decreasing Phenomena Found in the Phase Synchronization
Yoshihiko Hirai, Kenzo Nanri and Shigeaki Akiyama 45

Chemical Potentials of MeV Dark Matter and Effective Number of Neutrinos
Yoshihiro Kurosawa and Teruyuki Kitabayashi 73

New Graphical Representation of Neutrino Oscillation Probability with Rotating Isosceles Triangle
Yuki Minagawa and Teruyuki Kitabayashi 81

The HE Gamma-Ray Property and the VHE Gamma-Ray Detection Possibility of the Blazar AO 0235+164
Shimpei Tsujimoto, Junko Kushida and Kyoshi Nishijima 89

A Study of Non-Thermal Particles before the Impulsive Phase of Solar Flares
Satoshi Kitajta, Masumi Shimojo and Teruyuki Kitabayashi 99

Water Structure Dynamics of Tofu Gels Analyzed by PFG-SE NMR and Dielectric Spectroscopy
Tsubasa Kawaguchi, Hironobu Saito, Ryo Kita, Naoki Shinyaishi, Shin Yagihara and Minoru Furuzaki 111

Study on Emulsifying Conditions for Preparing Kinetically Stable Emulsified Fuel
Maki Suzuki and Katsuhiko Fujio 121
Snježana Maksimović, Stevan Pilipović,
Petar Sokoloski, and Jasson Vidas:
Wave fronts via Fourier series coefficients ............................................. 1

Zoran Petrić:
Segal's multisimplicial spaces ............................................................... 11

Zarko Mijajlović and Aleksandar Pejović:
Hopf algebra of projection functions ....................................................... 23

Dejan Ilić, Slavko Moconja, and Predrag Tanović:
Groups with finitely many countable models ........................................... 33

Aleksandar T. Lipkovski and Samira Zeada:
A note on multivariate polynomial division and Gröbner bases .................. 43

Biljana Vujošević:
The index of product systems of Hilbert modules:
two equivalent definitions ........................................................................ 49

Dragan Stankov:
On linear combinations of Chebyshev polynomials .................................... 57

Goran Kilibarda:
Enumeration of certain classes of antichains ........................................... 69

Milojica Jaćimović, Izedin Krnić, and Oleg Obradović:
On the convergence of one class of the regularization methods
for ill-posed quadratic minimization problems with constraint .................... 89

Peter V. Danchev:
On almost $\omega_1$-$\text{p}^{\omega+n}$-projective Abelian $\text{p}$-groups ................. 103

M. C. Стибнев:
Асимптотическое разложение для решения неоднородного
разностного уравнения общего вида ......................................................... 113

Vladimir Kapustin:
Commutators on $L^2$-spaces .................................................................. 125

Jaroslav Hančel and Kalle Leppälä:
Irrationality measures for continued fractions with arithmetic functions .. 139

Włodzimierz M. Mikulski:
The induced connections on total spaces of fibred manifolds ..................... 149

N. H. Bingham:
On scaling and regular variation ............................................................... 161

Tim Trudgian:
The sum of the unitary divisor function .................................................... 175

(Continued at inside back cover)
INSTRUCTIONS FOR AUTHORS

Manuscripts should be submitted in three copies or by e-mail. They are expected not to exceed 16 printed pages. Each paper should be accompanied by an abstract and should bear the five-character Mathematics Subject Classification code.

Formulas should be displayed only if they must be enumerated for future reference or if they are too long or complicated. Please do not enumerate formulas which are not referred to.

Only standard abbreviations for names of journals (see Zentralblatt MATH) should be used in references.

Please prepare your manuscript in \LaTeX{} (template available at journal site) and send figures/illustrations as eps files (each figure/illustration in a separate file).

Waldo Arriagada and Hugo Ramírez:
Centers of skew polynomial rings ........................................... 181

Jing-Ming Zhang, Ting-Zhu Huang, and Ji-Ming Guo:
On the signless Laplacian spectral radius of unicyclic graphs
with fixed matching number ................................................... 187

Yong Shao and Miaomiao Ren:
On sturdy frame of abstract algebras .................................... 199

Aris Aghanians, Kamal Fallahi,
Kourosh Nourouzi, and Ram U. Verma:
Fixed points for Ćirić-G-contractions
in uniform spaces endowed with a graph ................................ 211

Reza Nikandish, Hamid Reza Maimani, and Sima Kiani:
Domination number in the annihilating-ideal graphs of commutative rings ... 225

Sh. Payrovi, S. Babaei, and I. Khalili-Gorji:
Bass numbers of generalized local cohomology modules ............... 233

Seyit Temir:
Convergence theorems of a scheme for I-asymptotically
quasi-nonexpansive type mapping in Banach space .......................... 239
Contents

1
Kohel Iwaki
On WKB Theoretic Transformations for Painlevé Transcendents on Degenerate Stokes Segments

59
Saeid Azam, Hiroyuki Yamane and Malihe Yousofzadeh
Classification of Finite-Dimensional Irreducible Representations of Generalized Quantum Groups via Weyl Groupoids

131
Ilaria Damiani
From the Drinfeld Realization to the Drinfeld–Jimbo Presentation of Affine Quantum Algebras: Injectivity

173
Maria D. Acosta, Julio Becerra Guerrero, Domingo García, Sun Kwang Kim and Manuel Maestre
The Bishop–Phelps–Bollobás Property: a Finite-Dimensional Approach

191
José M. Ansemil, Jerónimo López-Salazar and Socorro Ponte
The Spaces of Analytic Functions on Open Subsets of $\mathbb{R}^n$ and $C^\infty$
Contents

207
Jean-Christophe Bourin and Fumio Hiai
Anti-norms on Finite von Neumann Algebras

237
Andrew Baker
Power Operations and Coactions in Highly Commutative Homology Theories

273
Robin Walters
The Bernstein–Sato $\delta$-function of the Space of Cyclic Pairs

289
L.F. Chacón-Cortes and W.A. Zúñiga-Galindo
Non-local Operators, Non-Archimedean Parabolic-type Equations with Variable Coefficients and Markov Processes

319
Kiyoshi Mochizuki and Hideo Nakazawa
Uniform Resolvent Estimates for Magnetic Schrödinger Operators in a 2D Exterior Domain and their Applications to Related Evolution Equations

337
Yoshiyuki Kagei and Naoki Makio
Spectral Properties of the Linearized Semigroup of the Compressible Navier–Stokes Equation on a Periodic Layer

373
Andrea D'Agnolo and Pietro Polesello
Moriya Classes of Microdifferential Algebroids
Volume 64 · Number 1 · 2015

Primary abelian almost $n$-$\Sigma$-groups
P.V. Danchev 1

$nD - pD$ Dimensional reduction of micromagnetic structures
S. Soueid 9

Numerical analysis of a Cahn–Hilliard type equation with dynamic boundary conditions
H. Israel · A. Miranville · M. Petcu 25

Some questions concerning proper subrings
N. Jarboui · M.E.I. Toumi · S. Trabelsi 51

Nonexistence of positive solutions for a class of semilinear elliptic systems in a ball
D.D. Hai 57

Homogenization of an elastic medium having three phases
A. Bougammoura 65

A simple pointview for Kadec-1/4 theorem in the complex case
P. Vellucci 87

On F-normal subgroups of finite groups
X. Ma 93

Global nonlinear stability and “cold convection instability” of non-constant porous throughflows, 2D in vertical planes
R. De Luca 99

Coherent states and Berezin quantization for non-scalar holomorphic representations
B. Cahen 115

On some martingale inequalities for mean oscillations in weak spaces
M. Kikuchi 137

On solving two higher-order nonlinear PDEs describing the propagation of optical pulses in optic fibers using the the $\left(\frac{G}{G'} \frac{1}{G}\right)$-expansion method
E.M.E. Zayed · K.A.E. Alurrfi 167

Some properties of the Riesz potentials in Dunkl analysis
C. Abdelkefi · M. Rachdi 195

Equimeasurable rearrangements of functions satisfying the reverse Hölder or the reverse Jensen inequality
R. Shanin 217

Maximal non-treed subring of its quotient field
A. Ayache 229
Contents

Reuben Cauchi and Joseph N. Grima
Modelling of the static and dynamic properties of THO-type Silicates .......... 5

Kamil Szewc
Smoothed Particle Hydrodynamics Simulations Using Graphics Processing
Units ...................................................... 67

Wen-Guang Li
Validating Full Cavitation Model with an Experimental Centrifugal Pump ...... 81

Mahmoud Mohamed Reda Ahmed Elsawy and Sergey Leble
Finite-Difference Solution of Parabolic Equation and Numerical Simulation for
X-ray Focusing ........................................... 101
Contents

Joseph N. Grima, Roberto Caruana-Gauci, Daphne Attard and Ruben Gatt
*Simulations of the Properties of Elongated Hexagonal Dodecahedron Systems* .... 117

Victor Zammit, Ruben Gatt, Daphne Attard and Joseph N. Grima
*Core-Shell Modelling of Auxetic Inorganic Materials* .................. 137

Sergey Leble and Witold M. Lewandowski
*Novel Analytic-Numerical Model of Free Convection: with Leading Edge Considered* ................................. 167

Marc Guirao and Sergey Leble
*Kolmogorov Equation Solution: Multiple Scattering Expansion and Photon Statistics Evolution Modeling* ................... 187
Contents

From Computational Biology to System Biology

Ulrich H. E. Hansmann, Adam Liwo and Cezary Czaplewski

Foreword ................................................................. 209

Yi He, H. A. Scheraga and S. Rackovsky

A New Approach to Homology Modeling ........................................ 211

Andrzej Kolinski, Sebastian Kmiecik, Michal Jamroz, Maciej Blaszczzyk, Maksim Kouza and Mateusz Kurcinski

Coarse-Grained Modeling of Protein Structure, Dynamics and Protein-Protein Interactions .................................................. 219

Sumudu P. Leelananda, Marcin Pawlowski, Eshel Faraggi and Andrzej Kloczkowski

Improving Protein Structure Prediction, Refinement and Quality Assessment Techniques ....................................................... 231

Nguyen Truong Co, Man Hoang Viet, Phan Minh Truong, Maksim Kouza and Mai Suan Li

Key Factors Governing Fibril Formation of Proteins: Insights from Simulations and Experiments ..................................... 245

Ewa Broclawik, Tomasz Borowski and Mariusz Radoń

Spin and Electron Density Redistribution upon Binding of Non-Innocent Ligand by Iron in Enzymatic Environment: Challenges for Quantum Chemistry ....... 255

Pawel Dabrowski-Tumanski, Szymon Niewieczerzal and Joanna I. Sulkowska

Determining Critical Amino Acid Contacts for Knotted Protein Folding ........ 265

Ruihan Zhang, Jochen Erler and Jörg Langowski

Molecular Dynamics Simulation of Histone H3 and H4 N-Terminal Tail Conformation in the Presence and Absence of Nucleosome Core .............................................................. 281

Rafal Jakubowski, Anna Gogolinska, Lukasz Pełowski, Piotr Skrzyniarz and Wiesław Nowak

Computational Studies of TTR Related Amyloidosis: Exploration of Conformational Space through Petri Net-Based Algorithm .................. 289
Contents

From Computational Biology to System Biology

Jacek Biesiada, Marc Sudman, Michael Wagner, Andrew Rupert, Jill Hollenbach, Johannes-Peter Haas, Jarek Meller and Susan D. Thompson
Analysis of Susceptibility Loci for Juvenile Idiopathic Arthritis in the Extended MHC Region Using High Resolution SNP and HLA Allele Typing .................. 305

Mutharasu Gnanavel, Olli Yli-Harja and Meenakshisundaram Kandhavelu
Protein-Protein Interaction and Coarse Grained Simulation Study of Glioblastoma Multiforme Reveals Novel Pathways of GPR17 .................. 321

Przemysław Jurczak and Martyna Maszota-Zieleniak
NMR Studies of Human Cystatin C – Stable Isotope Labeling of Human Cystatin C .................................................. 327

Agnieszka Karczyńska, Bartłomiej Zaborowski and Magdalena Ślusarz
Investigation of Interactions between Dermorphin Analogs and µ-Opioid Receptor .......................................................... 331

Paweł Krupa, Magdalena A. Mozolewska, Bakhtiyor Rasulev, Cezary Czaplewski and Jerzy Leszczynski
Towards Mechanisms of Nanotoxicity – Interaction of Gold Nanoparticles with Proteins and DNA .............................................. 337

Joanna Makowska, Dorota Uber, Wioletta Żmudzińska and Lech Chmurzyński
Conformational Analysis of Fragment of Human Pin1 WW Domain: Influence of Charged Amino-Acid Residues on β-hairpin Structure ........................................ 343

Magdalena A. Mozolewska, Paweł Krupa, Bakhtiyor Rasulev, Adam Liwo and Jerzy Leszczynski
Preliminary Studies of Interaction between Nanotubes and Toll-Like Receptors .......................................................... 351

Helen W. German, Manikanthan Bhavaraju, Sahin Uyaver and Ulrich H. E. Hansmann
Computational Insights into the Self-Assembly of Phenylalanine-Based Molecules ..................................................... 357

Erik J. Alred, Emily G. Scheele, Workalemahu M. Berhanu and Ulrich H. E. Hansmann
Comparative stability analysis of D23N mutated Aβ ........................................ 365

Maksim Kouza, Michal Jamroz, Dominik Gront, Sebastian Kmiecik and Andrzej Kolinski
Mechanical Unfolding of DDFLN4 Studied by Coarse-Grained Knowledge-Based CABS Model ........................................ 373
Marta Strumillo, Aleksandra E. Dawid, Agata Szczasiuk and Dominik Gront
Implementation and Evaluation of New Protocol for Comparative Modeling
of Protein Structures ......................................................... 379
List of Participants ............................................................. 385
### CONTENTS

Nagatoshi Sasano: Lie algebras associated with a standard quadruplet and prehomogeneous vector spaces ........................................... 1

G. A. Bagheri-Bardi: Generalized Fourier-Stieltjes algebra ...................... 15

Katsuhisa Koshino: The Baire property of certain hypo-graph spaces ......... 29

Anthony C. Kable: On certain conformally invariant systems of differential equations II: Further study of type A systems ............................. 39

Yoshihiro Abe: Structural properties of ideals over $\mathcal{P}_k \lambda$ I .................. 83

Yasuyuki Oka: A characterization of the tempered distributions supported by a regular closed set in the Heisenberg group ............................ 97

Seiichiro Wakabayashi: On the Cauchy problem for a class of hyperbolic operators whose coefficients depend only on the time variable ...... 121

Naotsugu Chinen and Tetsuya Hosaka: Erratum to “Asymptotic dimension and boundary dimension of proper CAT(0) spaces” .................... 165