

# STEFAN STANIMIROVIĆ



Assistant Professor at University of Niš, Serbia  
Faculty of Sciences and Mathematics, Department of Computer Science

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## EDUCATION

Ph.D. in Computer Science

University of Niš, Faculty of Sciences and Mathematics

2013 – 2019

Niš, Serbia

- Thesis title: Improved algorithms for determinization of fuzzy and weighted automata (in Serbian) [Link: [🔗](#)]
- Thesis supervisor: Miroslav Ćirić

M.Sc. in Computer Science

University of Niš, Faculty of Sciences and Mathematics

2011 – 2013

Niš, Serbia

- Thesis title: Fuzzy relation inequalities and applications (in Serbian)
- Thesis supervisor: Jelena Ignjatović

B.Sc. in Computer Science

University of Niš, Faculty of Sciences and Mathematics

2008 – 2011

Niš, Serbia

## EXPERIENCE

Assistant Professor

University of Niš, Faculty of Sciences and Mathematics

June 2020 – Ongoing

Niš, Serbia

- Design and Analysis of Algorithms, B.Sc., Department of Computer Science (2021 – Ongoing)
- Electronic Publishing, B.Sc., Department of Computer Science (Ongoing)
- Theory of Information and Coding, M.Sc., Department of Computer Science (2020 – Ongoing)
- Introduction to Object-Oriented Programming, B.Sc., Department of Physics (2020 – Ongoing)
- Basics of Computing, B.Sc., Department of Physics (2020 – Ongoing)
- Natural Computing [Lectures], Ph.D., Department of Computer Science (2022 - Ongoing)
- Mobile application development, M.Sc., Master 4.0 (2020 – 2022)
- Web application development, M.Sc., Master 4.0 (2020 – 2022)
- Web Programming, B.Sc., Department of Computer Science (2020 – 2021)

Teaching Assistant

University of Niš, Faculty of Sciences and Mathematics

April 2015 – June 2020

Niš, Serbia

- Web Programming, B.Sc., Department of Computer Science (2016 – 2020)
- Electronic Publishing, B.Sc., Department of Computer Science (2015 – 2020)
- Theory of Information and Coding, M.Sc., Department of Computer Science (2015 – 2020)
- Introduction to Object-Oriented Programming, B.Sc., Department of Physics (2016 – 2020)
- Basics of Computing, B.Sc., Department of Physics (2016 – 2020)
- Introduction to web programming, B.Sc., Department of Computer Science (2016 – 2019)

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## Secondary education teaching professor

### Gymnasium "Svetozar Marković"

📅 September 2018 – Ongoing

📍 Niš, Serbia

- Professor in the department for children talented in mathematicians, for the course "Programming and programming languages"
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## Secondary education teaching professor

### Gymnasium "Bora Stanković"

📅 January 2015 – June 2016

📍 Niš, Serbia

- Professor in the department for children gifted for computer science, for courses "Programming" and "Programming and programming languages"
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## Software Developer

### Stankovićsoft

📅 January 2015 – April 2015

📍 Niš, Serbia

- Developing web applications using multiple programming paradigms, including PHP, MySQL, Javascript, Zend Framework, Yii Framework
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## Software Developer

### Betech

📅 January 2015 – April 2015

📍 Belgrade, Serbia

- Developing web applications using multiple programming paradigms, including PHP, MySQL, Javascript, Magento, Yii Framework, Zend Framework
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# PARTICIPATION IN RESEARCH PROJECTS

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## QUAM (Quantitative Automata Models: Fundamental Problems and Applications)

### Funder: Science Fund of the Republic of Serbia

📅 2022 – 2024

- Grant Number: 7750185
  - Holder: University of Niš, Faculty of Sciences and Mathematics
  - Project leader: Miroslav Ćirić (University of Niš)
- 

## Development of methods of computation and information processing: theory and applications

### Funder: Ministry of Education, Science, and Technological Development, Republic of Serbia

📅 2015 – 2019

- Grant Number: 174013
  - Holder: University of Niš, Faculty of Sciences and Mathematics
  - Project leader: Miroslav Ćirić (University of Niš)
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## Bilateral Erasmus+ KA103 (STA) Project with National and Kapodistrian University of Athens

### Funder: Erasmus+

📅 2019

# ACADEMIC SERVICE

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## Journal Reviewer

📅 2014 – Ongoing

Fuzzy Sets and Systems (Elsevier)

Information Sciences (Elsevier)

Soft Computing (Springer)

International Journal of Approximate Reasoning (Elsevier)

International Journal of Fuzzy Systems (Springer)

Expert Systems with Applications (Elsevier)

Journal of Logical and Algebraic Methods in Programming (Elsevier)

Iranian Journal of Fuzzy Systems (University of Sistan and Baluchestan)

Engineering Computations (Emerald Publishing)

International Journal of Fuzzy Logic and Intelligent Systems (Korean Institute of Intelligent Systems)

Discrete Mathematics (Elsevier)

Missouri Journal of Mathematical Sciences (University of Central Missouri)

Ars Combinatoria, a Canadian Journal of Combinatorics (Charles Babbage Research Centre, Canada)

Facta Universitatis. Series: Mathematics and Informatics (University of Niš, Serbia)

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## Journal Management

📅 2021 – Ongoing

Facta Universitatis. Series: Mathematics and Informatics (University of Niš)

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## STUDY VISITS

### University of Navara

**Funder: University of Navara, Spain**

📅 24 April 2023 – 28 April 2023

📍 Pamplona, Spain

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### University of Warsaw

**Funder: NAWA Polish National Agency for Academic Exchange**

📅 05 May 2022 – 12 May 2022

📍 Warsaw, Poland

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### National and Kapodistrian University of Athens

**Funder: Erasmus+**

📅 28 March 2019 – 1 July 2019

📍 Athens, Greece

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## AWARDS



**Annual Award of the Mathematical Institute of the Serbian Academy of Sciences and Arts (2020)**

Award for the best defended doctoral dissertation in the field of computer science for PhD. students



**Best Student Award of the University of Niš (2010)**

Award for the best student of Faculty of Sciences and Mathematics

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## SKILLS

### Coding

C/C++

C#

JavaScript

PHP

Java

SQL

Cloud Firestore

LaTeX

HTML/CSS

### Frameworks

Node.js

Yii

Zend

WordPress

### Developer Tools

Git

Overleaf

VS Code

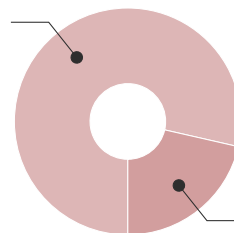
Visual Studio

Eclipse

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## PUBLICATIONS

Articles



Conference Proceedings

# LIST OF PUBLICATIONS

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Date: August 20, 2024.

## Journal Articles

- [1] I. Stanković, Z. Jančić, M. Ćirić, I. Micić, and **S. Stanimirović**, “Two-mode weakly linear systems of fuzzy relation equations: Structures of solutions, computation methods, and applications,” *Information Sciences*, vol. 686, p. 121 319, 2025. DOI: <https://doi.org/10.1016/j.ins.2024.121319>.
- [2] A. G. de Mendivil Grau, F. Fariña, **S. Stanimirović**, I. Micić, and J. R. G. de Mendivil, “Polynomial crisp-minimization algorithm for fuzzy deterministic automata,” *Fuzzy Sets and Systems*, vol. 495-496, p. 109 108, 2024. DOI: <https://doi.org/10.1016/j.fss.2024.109108>.
- [3] I. Micić, M. Ćirić, J. Matejić, **S. Stanimirović**, and L. A. Nguyen, “Approximate weak simulations and bisimulations for fuzzy automata over the product structure,” *Fuzzy Sets and Systems*, vol. 485, p. 108 959, 2024. DOI: <https://doi.org/10.1016/j.fss.2024.108959>.
- [4] I. Micić, **S. Stanimirović**, J. R. González de Mendivil, M. Ćirić, and Z. Jančić, “Finite determinization of fuzzy automata using a parametric product-based t-norm,” *Fuzzy Sets and Systems*, vol. 488, p. 108 990, 2024. DOI: <https://doi.org/10.1016/j.fss.2024.108990>.
- [5] L. A. Nguyen, I. Micić, N.-T. Nguyen, and **S. Stanimirović**, “Depth-bounded fuzzy bisimulation for fuzzy modal logic,” *Cybernetics and Systems*, vol. 0, no. 0, pp. 1–18, 2024. DOI: [10.1080/01969722.2023.2296248](https://doi.org/10.1080/01969722.2023.2296248).
- [6] A. G. de Mendivil Grau, **S. Stanimirović**, and F. Fariña, “Minimal determinization algorithm for fuzzy automata,” *IEEE Transactions on Fuzzy Systems*, vol. 31, no. 11, pp. 3812–3822, 2023. DOI: [10.1109/TFUZZ.2023.3268406](https://doi.org/10.1109/TFUZZ.2023.3268406).
- [7] I. Micić, **S. Stanimirović**, and Z. Jančić, “Approximate positional analysis of fuzzy social networks,” *Fuzzy Sets and Systems*, vol. 454, pp. 149–172, 2023. DOI: [10.1016/j.fss.2022.05.008](https://doi.org/10.1016/j.fss.2022.05.008).
- [8] L. A. Nguyen, I. Micić, and **S. Stanimirović**, “Depth-bounded fuzzy simulations and bisimulations between fuzzy automata,” *Fuzzy Sets and Systems*, vol. 473, p. 108 729, 2023. DOI: [10.1016/j.fss.2023.108729](https://doi.org/10.1016/j.fss.2023.108729).
- [9] L. A. Nguyen, I. Micić, and **S. Stanimirović**, “Fuzzy minimax nets,” *IEEE Transactions on Fuzzy Systems*, vol. 31, no. 8, pp. 2799–2808, 2023. DOI: [10.1109/TFUZZ.2023.3237936](https://doi.org/10.1109/TFUZZ.2023.3237936).
- [10] **S. Stanimirović** and I. Micić, “On generalizations of stirling numbers and some well-known matrices,” *Facta Universitatis. Series: Mathematics and Informatics*, vol. 38, no. 4, pp. 847–867, 2023. DOI: [10.22190/FUMI230822055S](https://doi.org/10.22190/FUMI230822055S).
- [11] I. Micić, L. A. Nguyen, and **S. Stanimirović**, “Characterization and computation of approximate bisimulations for fuzzy automata,” *Fuzzy Sets and Systems*, vol. 442, pp. 331–350, 2022. DOI: [10.1016/j.fss.2022.05.003](https://doi.org/10.1016/j.fss.2022.05.003).
- [12] A. Stamenković, **S. Stanimirović**, and V. Halava, “Certain linear and weakly linear systems of matrix equations over semirings. applications in a state reduction of weighted automata,” *Filomat*, vol. 36, no. 8, pp. 2775–2793, 2022. DOI: [10.2298/fil2208775s](https://doi.org/10.2298/fil2208775s).
- [13] **S. Stanimirović** and I. Micić, “On the solvability of weakly linear systems of fuzzy relation equations,” *Information Sciences*, vol. 607, pp. 670–687, 2022. DOI: [10.1016/j.ins.2022.05.111](https://doi.org/10.1016/j.ins.2022.05.111).
- [14] **S. Stanimirović**, I. Micić, and M. Ćirić, “Approximate bisimulations for fuzzy automata over complete heyting algebras,” *IEEE Transactions on Fuzzy Systems*, vol. 30, no. 2, pp. 437–447, 2022. DOI: [10.1109/TFUZZ.2020.3039968](https://doi.org/10.1109/TFUZZ.2020.3039968).
- [15] **S. Stanimirović**, A. Stamenković, and M. Ćirić, “Improved algorithms for computing the greatest right and left invariant boolean matrices and their application,” *Filomat*, vol. 33, no. 9, pp. 2809–2831, 2019. DOI: [10.2298/fil1909809s](https://doi.org/10.2298/fil1909809s).
- [16] I. Micić, Z. Jančić, and **S. Stanimirović**, “Computation of the greatest right and left invariant fuzzy quasi-orders and fuzzy equivalences,” *Fuzzy Sets and Systems*, vol. 339, pp. 99–118, 2018, Theme: Algebra and Set Theory. DOI: [10.1016/j.fss.2017.09.004](https://doi.org/10.1016/j.fss.2017.09.004).
- [17] **S. Stanimirović**, M. Ćirić, and J. Ignjatović, “Determinization of fuzzy automata by factorizations of fuzzy states and right invariant fuzzy quasi-orders,” *Information Sciences*, vol. 469, pp. 79–100, 2018. DOI: [10.1016/j.ins.2018.08.033](https://doi.org/10.1016/j.ins.2018.08.033).
- [18] **S. Stanimirović**, “A matrix approach to the binomial theorem,” *Ukrainian Mathematical Journal*, vol. 64, no. 11, pp. 1784–1792, Apr. 2013. DOI: [10.1007/s11253-013-0752-3](https://doi.org/10.1007/s11253-013-0752-3).
- [19] **S. Stanimirović**, P. Stanimirović, and A. Ilić, “Ballot matrix as catalan matrix power and related identities,” *Discrete Applied Mathematics*, vol. 160, no. 3, pp. 344–351, 2012. DOI: [10.1016/j.dam.2011.10.016](https://doi.org/10.1016/j.dam.2011.10.016).
- [20] **S. Stanimirović**, “A generalization of the pascal matrix and its properties,” *Facta universitatis - series: Mathematics and Informatics*, no. 26, pp. 17–27, 2011.
- [21] **S. Stanimirović**, “Some identities on catalan numbers and hypergeometric functions via catalan matrix power,” *Applied Mathematics and Computation*, vol. 217, no. 22, pp. 9122–9132, 2011. DOI: [10.1016/j.amc.2011.03.138](https://doi.org/10.1016/j.amc.2011.03.138).
- [22] P. Stanimirović and **S. Stanimirović**, “Inversion of catalan matrix plus one,” *Journal of Applied Mathematics and Computing*, vol. 35, no. 1-2, pp. 497–505, Jan. 2010. DOI: [10.1007/s12190-009-0373-z](https://doi.org/10.1007/s12190-009-0373-z).

- [23] P. Stanimirović and **S. Stanimirović**, “Inverting linear combinations of identity and generalized catalan matrices,” *Linear Algebra and its Applications*, vol. 433, no. 7, pp. 1472–1480, 2010. DOI: 10.1016/j.laa.2010.06.026.
- [24] **S. Stanimirović**, P. Stanimirović, M. Miladinović, and A. Ilić, “Catalan matrix and related combinatorial identities,” *Applied Mathematics and Computation*, vol. 215, no. 2, pp. 796–805, 2009. DOI: 10.1016/j.amc.2009.06.003.
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## Conference Proceedings

- [25] M. Ćirić, I. Micić, **S. Stanimirović**, and L. A. Nguyen, “Approximate state reduction of fuzzy finite automata,” in *Proceedings of the 16th International Conference on Automata and Formal Languages, Eger, Hungary, September 5-7, 2023*, Z. Gazdag, S. Iván, and G. Kovásznai, Eds., ser. Electronic Proceedings in Theoretical Computer Science, vol. 386, Open Publishing Association, 2023, pp. 51–66. DOI: 10.4204/EPTCS.386.6.
- [26] Z. Jančić, I. Micić, **S. Stanimirović**, J. R. Gonzalez de Mendivil, and M. Ćirić, “Finite nerode construction for fuzzy automata over the product algebra,” in *Fuzzy Logic and Technology, and Aggregation Operators*, S. Massanet, S. Montes, D. Ruiz-Aguilera, and M. González-Hidalgo, Eds., Cham: Springer Nature Switzerland, 2023, pp. 555–566, ISBN: 978-3-031-39965-7. DOI: 10.1007/978-3-031-39965-7\_46.
- [27] A. G. de Mendivil Grau, **S. Stanimirović**, and F. Fariña, “Reduction graph for minimal determinization of fuzzy automata,” in *Fuzzy Logic and Technology, and Aggregation Operators*, S. Massanet, S. Montes, D. Ruiz-Aguilera, and M. González-Hidalgo, Eds., Cham: Springer Nature Switzerland, 2023, pp. 543–554, ISBN: 978-3-031-39965-7. DOI: 10.1007/978-3-031-39965-7\_45.
- [28] I. Micić, J. Matejić, **S. Stanimirović**, and L. A. Nguyen, “Towards new types of weak bisimulations for fuzzy automata using the product t-norm,” in *Fuzzy Logic and Technology, and Aggregation Operators*, S. Massanet, S. Montes, D. Ruiz-Aguilera, and M. González-Hidalgo, Eds., Cham: Springer Nature Switzerland, 2023, pp. 567–578, ISBN: 978-3-031-39965-7. DOI: 10.1007/978-3-031-39965-7\_47.
- [29] **S. Stanimirović**, I. Micić, and L. A. Nguyen, “On relationships between approximate bisimulations for fuzzy graphs and their approximation degrees,” in *Fuzzy Logic and Technology, and Aggregation Operators*, S. Massanet, S. Montes, D. Ruiz-Aguilera, and M. González-Hidalgo, Eds., Cham: Springer Nature Switzerland, 2023, pp. 579–590, ISBN: 978-3-031-39965-7. DOI: 10.1007/978-3-031-39965-7\_48.
- [30] I. Micić, Z. Jančić, and **S. Stanimirović**, “Computation of solutions to certain nonlinear systems of fuzzy relation inequations,” in *Algebraic Informatics*, D. Poulakis and G. Rahonis, Eds., Cham: Springer International Publishing, 2022, pp. 192–202, ISBN: 978-3-031-19685-0. DOI: 10.1007/978-3-031-19685-0\_14.
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## Keynote/invited lectures

- [31] **S. Stanimirović**, *Towards new equivalence modelling for fuzzy automata*, The Eleventh International Workshop on Mathematical Models and their Applications, (IWMMA 2022, Online), November 22-24, 2022.
- 

## Conference Talks

- [32] I. Micić, M. Ćirić, J. Matejić, **S. Stanimirović**, and L. A. Nguyen, “Weak bisimulations: Trading the impreciseness for the finiteness,” The Seventeenth International Conference on Fuzzy Set Theory and Applications, Liptovský Ján, Slovak Republic, January 28 - February 2, 2024, 2024.
- [33] **S. Stanimirović**, I. Micić, M. Ćirić, Z. Jančić, and I. Stanković, “On the solvability of certain nonlinear systems of fuzzy relation equations,” 15th Serbian Mathematical Congress (SMAK 2024), Belgrade, Serbia, June 19–22, 2024.
- [34] M. Ćirić, I. Micić, **S. Stanimirović**, and L. A. Nguyen, “Approximate state reduction of fuzzy finite automata,” 16th International Conference on Automata and Formal Languages, Eger, Hungary, September 5-7, 2023.
- [35] Z. Jančić, I. Micić, **S. Stanimirović**, J. R. Gonzalez de Mendivil, and M. Ćirić, “Finite nerode construction for fuzzy automata over the product algebra,” 13th Conference of the European Society for Fuzzy Logic and Technology EUSFLAT 2023 and 12th International Summer School on Aggregation Operators AGOP 2023, Palma (Spain), September 4 - 8, 2023.
- [36] A. G. de Mendivil Grau, **S. Stanimirović**, and F. Fariña, “Reduction graph for minimal determinization of fuzzy automata,” 13th Conference of the European Society for Fuzzy Logic and Technology EUSFLAT 2023 and 12th International Summer School on Aggregation Operators AGOP 2023, Palma (Spain), September 4 - 8, 2023.
- [37] I. Micić, J. Matejić, **S. Stanimirović**, and L. A. Nguyen, “Towards new types of weak bisimulations for fuzzy automata using the product t-norm,” 13th Conference of the European Society for Fuzzy Logic and Technology EUSFLAT 2023 and 12th International Summer School on Aggregation Operators AGOP 2023, Palma (Spain), September 4 - 8, 2023.

- [38] **S. Stanimirović**, "Determinization of fuzzy automata: A throwback to past results and a glimpse towards new frontiers," 11th International Workshop Weighted Automata: Theory and Applications (WATA 2023), Leipzig, Germany, October 4–7, 2023.
- [39] **S. Stanimirović**, I. Micić, and L. A. Nguyen, "On relationships between approximate bisimulations for fuzzy graphs and their approximation degrees," 13th Conference of the European Society for Fuzzy Logic and Technology EUSFLAT 2023 and 12th International Summer School on Aggregation Operators AGOP 2023, Palma (Spain), September 4 - 8, 2023.
- [40] I. Micić, Z. Jančić, and **S. Stanimirović**, "Computation of solutions to certain nonlinear systems of fuzzy relation inequations," 9th International Conference on Algebraic Informatics (CAI 2022), Online, October 27 - 29, 2022.
- [41] I. Micić and **S. Stanimirović**, "The concept of approximate regular fuzzy relation and its applications," Congress of Young Mathematicians, Novi Sad, Serbia, September 29 - October 1, 2022.
- [42] **S. Stanimirović** and I. Micić, "Solving systems of fuzzy relation equations of the form  $AX = XA$ ," Congress of Young Mathematicians, Novi Sad, Serbia, September 29 - October 1, 2022.
- [43] **S. Stanimirović**, I. Micić, and Z. Jančić, "Approximate solutions of weakly linear systems of fuzzy relation equations," The Sixteenth International Conference on Fuzzy Set Theory and Applications (FSTA 2022), Liptovský Ján, Slovak Republic, January 30 - February 4, 2022.
- [44] I. Micić, **S. Stanimirović**, and Z. Jančić, "Blockmodeling of fuzzy transition systems using approximate regular relations," 10th International Workshop Weighted Automata: Theory and Applications (WATA 2021), Online, April 20–23, 2021.
- [45] **S. Stanimirović**, I. Micić, and M. Ćirić, "Approximate simulation and bisimulation relations for fuzzy automata," 10th International Workshop Weighted Automata: Theory and Applications (WATA 2021), Online, April 20–23, 2021.
- [46] Z. Jančić, I. Micić, and **S. Stanimirović**, "Computation of the greatest right and left invariant fuzzy quasi-orders and fuzzy equivalences," 9th International Workshop Weighted Automata: Theory and Applications (WATA 2018), Leipzig, Germany, May 22–26, 2018.
- [47] A. Stamenković and **S. Stanimirović**, "Certain systems of matrix equations over semirings. applications in a state reduction of weighted automata," 9th International Workshop Weighted Automata: Theory and Applications (WATA 2018), Leipzig, Germany, May 22–26, 2018.
- [48] **S. Stanimirović**, M. Ćirić, and J. Ignjatović, "Algorithms for computing complete deterministic fuzzy automata via invariant fuzzy quasi-orders," 9th International Workshop Weighted Automata: Theory and Applications (WATA 2018), Leipzig, Germany, May 22–26, 2018.
- [49] **S. Stanimirović**, M. Ćirić, and J. Ignjatović, "An improvement of the determinization of fuzzy finite automata via factorization of fuzzy states," 7th Conference on Algebraic Informatics (CAI 2017), Kalamata, Greece, June 25-28, 2018.
- [50] **S. Stanimirović**, M. Ćirić, and J. Ignjatović, "Determinization methods for fuzzy automata based on factorizations of fuzzy states," The 5th International Scientific Conference: Analysis, Topology, Algebra: Theory and Applications (ATA 2016), Čačak, Serbia, July 06-09, 2018.