

Datum: 19. 11. 2021

Zadeva: **Poročilo SDI-SOR o SOR'21**

Sekcija za operacijske raziskave Slovenskega društva INFORMATIKA (SDI-SOR, Litostrojska cesta 54, SI 1000 Ljubljana, ki ji predseduje prof. dr. Lidija Zadnik Stirn, je skupaj s Fakulteto za organizacijske študije, Univerze v Mariboru (UM, FOV, Kidričeva cesta 55a, Kranj), ter Fakulteto za strojništvo, Univerze v Ljubljani (UL, FS, Aškerčeva cesta 6, Ljubljana), v dneh od 22. do 24. septembra 2021 preko spleta organizirala 16. mednarodni simpozij iz operacijskih raziskav (The 16th International Symposium on Operational Research – SOR'21).

SOR'21 je bil strokovno brezhibno organiziran po zaslugi članov **Organizacijskega odbora SOR'19**:

- P. Gorjanc, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia, predsednica, z ekipo kolegov: Nino Pfeifer Pušnik, Aljažem Murkom, Ano Kraner Porenta in Rokom Igličar,
- S. Drobne, University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia, podpredsednik,
- N. Fileš, Slovenian Society Informatika, Ljubljana,
- M. Kljajić Borštnar, University of Maribor, Faculty of Organizational Science, Kranj, Slovenia,
- J. Povh, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia,
- L. Zadnik Stirn, University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia.

Za kakovostno raven vabljenih prispevkov in recenziranih referatov so poskrbeli člani Programskega odbora SOR'21 in recenzenti prispevkov za SOR'21.

Člani **Programskega odbora SOR'21** so bili:

- L. Zadnik Stirn, University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia, predsednica
- M. Kljajić Borštnar, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia, podpredsednica
- J. Žerovnik, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia, podpredsednik
- J. Arnerić, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- F. Berberich, PRACE – The Partnership for Advanced Computing in Europe, Brussels, Belgium
- M. Bogataj, Zavod INRISK – Inštitut za raziskavo sistemov izpostavljenih rizikom, Slovenia
- M. Bohanec, Jožef Stefan Institute, Department of Knowledge Technologies, Ljubljana, Slovenia
- D. Bokal, University of Maribor, Faculty of Natural Sciences and Mathematics, Maribor, Slovenia
- S. Cabello, University of Ljubljana, Faculty of Mathematics and Physics, Ljubljana, Slovenia
- K. Cechlarova, P. J. Šafarik University, Faculty of Science, Košice, Slovakia
- T. Csendes, University of Szeged, Department of Applied Informatics, Szeged, Hungary
- V. Čančer, University of Maribor, Faculty of Business and Economics, Maribor, Slovenia
- S. Drobne, University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia
- K. Dumičić, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- L. Ferbar Tratar, University of Ljubljana, Faculty of Economics, Ljubljana, Slovenia
- H. Gasparis-Wieloch, Poznan University of Economics and Business, Poznan, Poland
- N. Herakovič, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia

- E. Hontoria, Technical University of Cartagena, Business Management Department, Cartagena, Spain
- T. Illes, Corvinus Centre for Operations, Corvinus University of Budapest, Budapest, Hungary
- J. Jablonsky, University of Economics, Faculty of Informatics and Statistics, Prague, Czech Republic
- J. Jozefowska, Poznan University of Technology, Poznan, Poland, EURO vice-president
- S. Klavžar, University of Ljubljana, Faculty of Mathematics and Physics, Ljubljana, Slovenia
- A. Košir, University of Ljubljana, Faculty of Electrical Engineering, Ljubljana, Slovenia
- J. Kušar, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia
- U. Leopold-Wildburger, University of Graz, Graz, Austria
- Z. Lukač, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- J. Michnik, University of economics, Katowice, Poland
- M. Pejić Bach, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- T. Perić, University of Zagreb, Faculty Economics and Business, Zagreb, Croatia
- S. Pivac, University of Split, Faculty of Economics, Department for Quantitative Methods, Split, Croatia
- J. Povh, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia
- U. Rajkovič, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Č. Rozman, University of Maribor, Faculty of Agriculture and life sciences, Maribor, Slovenia
- J. Šilc, Jožef Stefan Institute, Computer Systems Department, Ljubljana, Slovenia
- T. Škrinjarić, Croatian National Bank, Trg hrvatskih velikana 3, 10000 Zagreb, Croatia
- T. Trzaskalik, University of Economics, Department of Operational Research, Katowice, Poland
- T. Wachowicz, University of Economics, Dept. of OR, Katowice, Poland
- G.W. Weber, Poznan University of Technology, Faculty of Engineering Management, Poznan, Poland

Recenzenti prispevkov za SOR'21 so bili:

- Wellington Alves, Business School, Instituto Politécnico de Viana do Castelo; ALGORITMI Research Centre, Universidade do Minho, Portugal
- Josip Arnerić, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- Marija Bogataj, University of Ljubljana, Faculty of Economics, and INRISK, Slovenia
- Marko Bohanec, Jožef Stefan Institute, Department of Knowledge Technologies, Ljubljana, Slovenia
- D. Bokal, University of Maribor, Faculty of Natural Sciences and Mathematics, and DataBitLab d.o.o., Maribor, Slovenia
- Katarína Cechlárová, P. J. Šafarik University, Faculty of Science, Košice, Slovakia
- Vesna Čančer, University of Maribor, Faculty of Economics and Business
- Ćukušić Maja, University of Split, Faculty of Business, Economics and Tourism, Split, Croatia
- Samo Drobne, University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia
- Ksenija Dumičić, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- Eisenberg-Nagy Marianna, Corvinus University of Budapest, Corvinus Centre for Operations Research
- Helena Gasparis-Wieloch, Poznan University of Economics and Business, Poznan, Poland
- Eloy Hontoria, Technical University of Cartagena, Business Management Department, Cartagena, Spain
- Tibor Illés, Corvinus University of Budapest, Corvinus Centre for Operations Research
- Mario Jadrić, University of Split, Faculty of Business, Economics and Tourism, Split, Croatia
- Janja Jerebic, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Veljko Jeremić, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia
- Sandi Klavžar, University of Ljubljana, Faculty of Mathematics and Physics, Ljubljana, Slovenia

- Mirjana Kljajić Borštnar, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Andrej Košir, University of Ljubljana, Faculty of Electrical Engineering, Ljubljana, Slovenia
- Vasja Leban, University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia
- Zrinka Lukač, University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia
- Karmen Pažek, University of Maribor, Faculty of Agriculture and Life Sciences
- Mirjana Pejić Bach, Faculty of Economics & Business, University of Zagreb, Croatia
- Tunjo Perić, University of Zagreb, Faculty Economics and Business, Department of Informatics, Zagreb, Croatia
- Snježana Pivac, University of Split, Faculty of Economics, Split, Croatia
- Janez Povh, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia
- Uroš Rajkovič, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Vladislav Rajkovič, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Helena Sofia Rodrigues, Business School, Instituto Politécnico de Viana do Castelo; Center for Research and Development in Mathematics and Applications (CIDMA), Universidade de Aveiro
- Črtomir Rozman, University of Maribor, Faculty of Agriculture and Life Sciences
- Darja Rupnik, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia
- Ângela Silva, Business School, Instituto Politécnico de Viana do Castelo; COMEGI, Universidade Lusíada, Portugal
- Jurij Šilc, Jožef Stefan Institute, Computer Systems Department, Ljubljana, Slovenia
- Tadeusz Trzaskalik, University of Economics, Department of Operational Research Katowice, Poland
- Lidija Zadnik Stirn, University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia
- Anja Žnidaršič, University of Maribor, Faculty of Organizational Sciences, Kranj, Slovenia
- Janez Žerovnik, University of Ljubljana, Faculty of Mechanical Engineering, Ljubljana, Slovenia

Na simpoziju je bilo predstavljeno pet vabljenih predavanj in 113 recenziranih referatov, ki jih je napisalo 240 avtorjev in soavtorjev; od tega jih je bilo 82 iz Slovenije in 158 iz tujine: Hrvaška (52), Madžarska (23), Portugalska (23), Srbija (17), Poljska (9), Češka (8), Slovaška (7), Španija (6), Nizozemska (4), Bosna in Hercegovina (2), Avstrija (1), Belgija (1), Francija (1), Nemčija (1), Romunija (1), Ukrajina (1), Združeno kraljestvo (1), ZDA (1). Posebej je treba omeniti 4 vabljene predavatelje iz tujine in 1 iz Slovenije in častne govornike na otvoritveni slovesnosti.

Častni govorniki na otvoritveni slovesnosti, ki jo je povezovala prof. dr. Mirjana Kljajić Borštnar, so bili:

- prof. dr. Lidija Zadnik Stirn, predsednica Sekcije za operacijske raziskave, Slovensko društvo Informatika.
- g. Niko Schlamberger, predsednik Slovenskega društva Informatika,
- prof. dr. Iztok Podbregar, dekan Fakultete za organizacijske vede, Univerza v Mariboru,
- prof. dr. Mihael Sekavčnik, dekan Fakultete za strojništvo, Univerze v Ljubljani,
- prof. dr. Mario Jadrić, predsednik Hrvaškega društva za operacijske raziskave,
- dr. Sarah Fores, generalna managerka EURO (The Association of European Operational Research Societies).

Vabljeni predavatelji (plenarna predavanja) so bili:

- Prof. Suresh P. Sethi, PhD, Eugene McDermott Chair Professor of Operations Management, Director, Center of Intelligent Supply Networks, Naveen Jindal School of Management, The University of Texas at Dallas, Dallas, USA,
- Prof. Panos Patrinos, PhD, KU Leuven, Dept. Electrical Engineering (ESAT), STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics, Leuven, Belgium,
- Assist. Prof. Vedran Kojić, PhD, University of Zagreb, Faculty of Economics & Business, Zagreb, Croatia,

- Assist. Prof. Nikolina Ban, PhD, University of Innsbruck (UIBK), Department of Atmospheric and Cryospheric Sciences, Innsbruck, Austria,
- Prof. Jerneja Žganec Gros, PhD, Alpineon Ltd, Ljubljana, Slovenia.

Na SOR'21 smo organizirali **enajst posebnih sekcij**, katere je vodilo **dvajset priznanih domačih in tujih strokovnjakov**; in sicer:

- Application of Operational Research in Smart Cities (Assoc. Prof. Dr. Maja Čukušić, Assoc. Prof. Dr. Mario Jadrić in SDI-SOR).
- Computational Mathematical Optimization (Assoc. Prof. Dr. Tibor Illés, Assoc. Prof. Dr. Marianna Eisenberg-Nagy in SDI-SOR).
- Data Science – Methodologies and Case Studies (Prof. Dr. Mirjana Pejić Bach in SDI-SOR).
- Graph Theory and Algorithms (Prof. Dr. Sandi Klavžar in SDI-SOR).
- High-Performance Computing and Big Data (Assoc. Prof. Dr. Janez Povh in SDI-SOR).
- Industry & Society 5.0: Optimization in Industrial and Human Environments (Prof. dr. Drago Bokal, Prof. dr. Andrej Košir in SDI-SOR).
- International Projects in Operations Research (Assoc. prof. dr. Anja Žnidaršič, Assist. prof. dr. Janja Jerebic in SDI-SOR).
- Lessons Learned from the COVID-19 Pandemic: Applications of Statistical and Operational Research Methods (Prof. Dr. Veljko Jeremić in SDI-SOR).
- Logistics and Sustainability (Assoc. Prof. Ângela Silva, Prof. Wellington Alves, Prof. Helena Sofia Rodrigues in SDI-SOR).
- Operational Research in Ageing Studies and Social Innovations (Prof. Marija Bogataj, Assoc. Prof. David Bogataj, Assist. Prof. Samo Drobne in SDI-SOR).
- Operations research in agricultural economics and farm management (Prof. Dr. Črtomir Rozman, Prof. Dr. Karmen Pažek in SDI-SOR).

The Proceedings of the 16th International Symposium on Operational Research in Slovenia, ki so ga uredili doc. dr. Samo Drobne, prof. dr. Lidija Zadnik Stirn, prof. dr. Mirjana Kljajić Borštner, izr. prof. dr. Janez Povh in prof. dr. Janez Žerovnik, ISBN 978-961-6165-57-0, COBISS SI-ID 75727107 in obsega 706 strani ter dodatek s seznamom vseh 240 avtorjev (28 strani), bo **eferiran** v: ISI (Index to Scientific & Technical Proceedings on CD-ROM and ISI/ISTP&B online database), Current Mathematical Publications, Mathematical Review, MathSci, Zentralblatt für Mathematic / Mathematics Abstracts, MATH on STN International, CompactMath, INSPEC, Journal of Economic Literature.

Referati v zborniku del so razdeljeni v šestnajst poglavij (številka v oklepaju pomeni število prispevkov v sekciji): Plenary Lectures (5); enajst posebnih sekcij: Application of Operational Research in Smart Cities (6), Computational Mathematical Optimization (13), Data Science – Methodologies and Case Studies (10), Graph Theory and Algorithms (2), High-Performance Computing and Big Data (3), Industry & Society 5.0: Optimization in Industrial and Human Environments (6), International Projects in Operations Research (2), Lessons Learned from the COVID-19 Pandemic: Applications of Statistical and OR Methods (8), Logistics and Sustainability (9), Operational Research in Ageing Studies and Social Innovations (5), Operational Research in Agricultural Economics and Farm Management (5), in osem sekcij: Econometric Models and Statistics (6), Environment and Social Issues (5), Finance and Investments (6), Location and Transport, Graphs and their Applications (5), Mathematical Programming and Optimization (6), Multi-Criteria Decision-Making (10), Theory of Games (3), and Problems Approaching OR (3).

Vsebina in struktura prispevkov je bila tudi tokrat vidno usmerjena v korist problemskim sklopom, čeprav je bilo tudi veliko zelo kakovostnih metodoloških prispevkov. Opazno je, da se operacijske raziskave vse bolj vključujejo v neposredne gospodarske probleme; navkljub velikemu številu udeležencev, ki so običajno avtorji, zlasti teoretičnih prispevkov, z univerz in raziskovalnih inštitutov. Nadalje je potrebno poudariti, da je bilo med avtorji veliko predstavnikov mlajše generacije, kar pomeni, da imajo operacijske raziskave tudi, kar se tiče kadrov, svetlo prihodnost.

The Proceedings of the 16th International Symposium on Operational Research in Slovenia je dosegljiv na internetni strani konference <https://sor.fov.um.si/publications/>, oziroma <http://fgg-web.fgg.uni->

lj.si/~sdrobne/sor/, kjer so tudi zborniki prejšnjih konferenc: SOR'19, SOR'17, SOR'15, SOR'13, SOR'11, SOR'09, SOR'07, and SOR'05.

Poleg zbornika The Proceedings of the 16th International Symposium on Operational Research in Slovenia bosta rezultat SOR'21 tudi posebni številki znanstvenih revij s faktorjem vpliva: BSRJ – Business Systems Research Journal, kjer so gostujoči uredniki Samo Drobne, Lidija Zadnik Stirn in Berislav Žmuk (Univerza v Zagrebu), in CEJOR – Central European Journal of Operations Research z gostujočimi uredniki Janez Povh, Lidija Zadnik Stirn in Janez Žerovnik. Vabilo za oddajo prispevkov v posebni številki BSRJ in CEJOR je na <https://sor.fov.um.si/publications/> pod Call for papers.

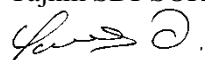
Na SOR'21, kljub temu da je bil izveden preko spleta, ni manjkal tudi kulturno-družabni dogodek. Zanj sta poskrbela odlični pianist prof. dr. Tadeusz Trzaskali, ki je zaigral »Fugue and Coda on the theme Poland Is Not Yet Lost« Karla Kurpiškega, in prof. dr. Tomasz Wachowitz, ki je k odlični klavirski izvedbi podal spremno besedo. Oba prihajata z Univerze Katowice na Poljskem. Dogodek si lahko ogledate na YouTube <https://www.youtube.com/watch?v=TMPLBjvtvPI>, spremna beseda pa je objavljena na <https://sor.fov.um.si/wp-content/uploads/2021/09/SOR21-concert-intro.pdf> oziroma preko strani <https://sor.fov.um.si/>.

Na koncu lahko ugotovimo, da je SOR'21, ki je tokrat obeležil že 16. izvedbo, presegel naša pričakovanja tako v strokovnem kot tudi moralnem pogledu. Velika udeležba tujih strokovnjakov je potrdila zaupanje v naše strokovne sile, obenem pa nudila domačim strokovnjakom priložnost, da se seznanijo z dosežki, ki razvitemu svetu pomenijo generator njihove diferencialne rente.

SOR'21 je finančno podprl PRACE (Partnership for Advanced Computing in Europe).

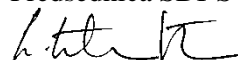
Še več detajlov o samem simpoziju lahko dobite na spletnih straneh SOR'21 (<https://sor.fov.um.si/>).

Tajnik SDI-SOR:



doc. dr. Samo Drobne

Predsednica SDI-SOR:



prof. dr. Lidija Zadnik Stirn