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# TRIZ FUTURE 2021

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21<sup>ST</sup> ETRIA WORLD CONFERENCE “TRIZ FUTURE  
2021”

CREATIVE SOLUTIONS FOR A SUSTAINABLE  
DEVELOPMENT

ONLINE - SEPTEMBER 22-24- 2021



## CONFERENCE PROGRAMME



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**Yuri Borgianni**

*Free University of Bozen-Bolzano, Italy*

### **Scientific Chair**

**Stelian Brad**

*Cluj IT Cluster, Technical University of Cluj-Napoca,  
Romania*

21<sup>ST</sup> ETRIA WORLD CONFERENCE

“TRIZ FUTURE” 2021

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2021



The European TRIZ Association  
**ETRIA**  
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- Christian Spreafico, University of Bergamo, Italy
- Christian M. Thurnes, Hochschule Kaiserslautern, Germany



# TFC 2021

## *Practitioners' papers*

- Oleg Y. Abramov, Algorithm Ltd., Russia
- Giacomo Bersano, IKOS Consulting Group, France
- Tiziana Bertoncelli, ANSYS Germany, Germany
- Christoph Dobrusskin, Philips, Netherlands
- Pierre-Emmanuel Fayemi, IKOS Consulting Group, France
- Oleg Feygensov, International TRIZ Association, Korea
- Thomas Fuhrmann, Schaeffler AG, Germany
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- Filippo Silipigni, Fondazione Politecnico di Milano, Center of Competence for Systematic Innovation, Italy
- Vladimir Sizikov, SIEGENIA GROUP, Germany
- Valeri Souchkov, ICG Training & Consulting, Netherlands
- Joerg Vetter, Oerlikon Balzers Coating Germany GmbH, Germany



## Workshops Day

Tuesday 21<sup>st</sup> September

### *Topics and [languages]*

- 9:30 Introducing TRIZ to Small and Medium size Enterprises (SMEs) via SIT (Systematic Innovation Thinking) [German, English]. Chairs: Oliver Mayer, Tiziana Bertoncelli.
- 11:00 “Easy to new ideas with TRIZ” – Basic TRIZ tools and their effect on creativity and problem solving – some experiences from Austria [German]. Chairs: Jürgen Jantschgi, Walter Brabek, Peter Jantschgi
- 14:00 Research-craftsmanship alliances for sustainability in South Tyrol: the Tiny FOP MOB as a case study [German, Italian, English,]. Chairs: Ingrid Kofler, Daria Habicher, Yuri Borgianni.
- 15:30 The assessment of Circular Economy to trigger sustainable innovation [Italian]. Chairs: Pasqualina Sacco, Guido Orzes
- 17:00 Use, diffusion and adoption of TRIZ in Italian companies [Italian]. Chair: Davide Russo

More information [here](#)





## Day 1\_ Wednesday 22<sup>nd</sup> September

### **10:00** Opening and greetings

- Yuri Borgianni, General Chair
- Dominik Matt, Coordinator of the Research Area “Industrial Engineering and Automation”, Faculty of Science and Technology, Free University of Bozen-Bolzano
- Marco Gobbetti, Dean of the Faculty of Science and Technology, Free University of Bozen-Bolzano
- Stelian Brad, Scientific Chair, ETRIA President
- TFC21’s sponsors

### **11:00** Break

### **11:15** Presentation session “Sustainable Development through Innovative approaches”

*Chairs: Gaetano Cascini, Christoph Dobrusskin*

- Lorenzo Maccioni and Yuri Borgianni "An ideality-based map to describe sustainable design initiatives"
- Pasqualina Sacco, Elena Rangoni Gargano and Alessia Cornella "Sustainable digitalization: a systematic literature review to identify how to make digitization more sustainable"
- Mas'Udah, Sandra Santosa, Pavel Livotov, Arun Prasad Chandra Sekaran and Luchis Rubianto



"Nature-Inspired Principles for Sustainable Process Design in Chemical Engineering"

- Roberta Garcia Mello de Araújo and Marco Aurelio de Carvalho "Comparative Analysis of Methods for Identifying Opportunities for Reusing Solid Waste"
- Ching-Hung Lee, Li Li and Peng Zhong "TRIZ Evolution Trend-based Public Service Innovation for Enhancing Social Participation of Life Garbage Classification"

**12:15** Keynote speech: Daniela Pigosso "When Innovation meets Circular Economy"

**13:15** Break

**14:00** Presentation session "Inventive applications targeting sustainability"

*Chairs: Lorenzo Maccioni, Hans-Gert Graebe*

- Sehoon Cho "Concept Design of Appropriate Technology Based on Circular Economy for Sustainable Development Inferred from Korea Traditional Heating System"
- Giuseppe Carmosino, Arianna Bionda and Andrea Ratti "Sustainability in yacht and vessel design through smart spaces: opportunities offered by digital technologies and new materiality"
- Paolo Carrara, Walter Morandi and Eleonora Tandoi "Building a green development roadmap using 5Rs and TRIZ"



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- Christoph Dobruskin, Loes Wijnoltz and Tessa Bouwkamp "Sustainable Cooking"
- Erica Roccatello, Alessandro Prada and Marco Baratieri "Hybrid heat pump systems as a possible solution for the energy transition towards sustainable heating systems for buildings"
- Cassiano Lemanski de Paiva and Marco Aurelio de Carvalho and "Reducing the Effects of Ice Accumulation in Evaporators Using TRIZ"

**15:00** Keynote speech: Paolo Rezzaghi "TRIZ and Intellectual Property Rights: how to protect ideas coming from TRIZ activities?"

**16:00** Break

**16:15** Presentation session "TRIZ, Intellectual Property and Smart Technologies"

*Chairs: Stelian Brad, Tiziana Bertoncetti*

- Matteo Spreafico and Davide Russo "Identifying new application fields of a given technology"
- Yindi Sun, Guo-zhong Cao, Chang Gao, Wen-dan Yang, Wie-pei Han and Kang Wang "Extraction and Modeling of Chinese Patent Information for Technical Advancement Evaluation"
- Vasilii Kaliteevskii, Arthur Deder, Nemanja Peric and Leonid Chechurin "Concept extraction based on semantic models using big amount of patents and scientific publications data"
- Daria Berdyugina and Denis Cavallucci "Automatic extraction of potentially



contradictory parameters from specific field patent texts"

- Guillaume Guarino, Ahmed Samet and Denis Cavallucci "Patent specialization for deep learning information retrieval algorithms"
- Giacomo Bersano and Matteo Spreafico "Patent intelligence analysis to support technology roadmap on the sector of renewable energy"

**17:30** Social event "What if you were actually in Bolzano, South Tyrol". Presentation of the conference venue and territory



## Day 2\_ Thursday 23<sup>rd</sup> September

**10:00** Keynote speech: Valeriy Prushinskiy “How much TRIZ in recent creative developments of smart products?”

**11:00** Break

**11:15** Presentation session “Moving forward in TRIZ theory and development”

*Chairs: Pavel Livotov, Oleg Abramov*

- Simon Dewulf and Peter RN Childs "Patent Data Driven Innovation Logic: Textual pattern exploration to identify innovation logic data"
- Darrell Mann "Matrix 2022: Re-Imagining The Contradiction Matrix"
- Hans-Gert Gräbe and Rainer Thiel "ProHEAL - Social needs and sustainability aspects in the methodology of the GDR Inventor Schools"
- Jerzy Chrząszcz "Indicating and assessing quality criteria for cause-effect models"
- Masih Hanifi, Hicham Chibane, Remy Houssin and Denis Cavallucci "Application of an FMEA based method to prioritize the initial problem choices in Inventive Design"
- Vasili Kaliteevskii, Matvey Bryksin and Leonid Chechurin "TRIZ Application for Digital Product Design & Management"



**12:15** Keynote speech: Martin Kiesel “The Future of TRIZ in a VUCA (volatility, uncertainty, complexity, and ambiguity) world”

**13:15** Break

**14:00** Presentation session “TRIZ in non-conventional fields of application”

*Chairs: Federico Rotini, Vasili Kaliteevskii*

- Marco Bietresato and Fabrizio Mazzetto "A reasoned evolutionary study on the actual design of farm tractors"
- Vladimir Petrov and Denis Petrov "Practice of solving business problems using TRIZ"
- Joanna Majchrzak and Ewa Więcek-Janka "TRIZ contradiction modelling in family business succession process management: quantitative approach with an application of Grey Incidence Analysis."
- Paolo Carrara, Walter Morandi, Valentina Campagiorni and Eleonora Tandoi "An Innovation Management framework to enhance TRIZ diffusion in SMEs"
- Nicola Frigo, Davide Russo, Riccardo Degl'Innocenti, Christian Spreafico and Paolo Peri "A pioneering project on laser pyrolysis based entirely on TRIZ"
- Soumaya El Yousoufi, Mohamed Mazouzi, Anass Cherrafi and Ahlam Haroufi "A Holistic Model for Sustainable and Innovative Business Empowerment"



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**15:00** Keynote speech: Irena Spasić “Emerging applications of natural language processing in health and well being”

**16:00** Break

**16:15** Presentation session “TRIZ, data processing and Artificial Intelligence”

*Chairs: Christian Spreafico, Jerzy Chrzyszcz*

- Lijie Feng, Yuxiang Niu, Jinfeng Wang, Yinuo Chen, Zhenfeng Liu and Kang Li "Element Variation Innovation Thinking: A method of simplifying and reorganizing TRIZ"
- Giorgio Cavaliere, Yuri Borgianni and Carmen Schaefer "Study of an in-line automated system for surface defects analysis of aluminium die-cast components using Artificial Intelligence"
- Hans-Gert Gräbe "Towards a Linked Open Data TRIZ Ontology"
- Pavel Livotov "Method for formulation, selection and application of elementary TRIZ inventive principles for automated idea generation"
- Xin Ni, Ahmed Samet and Denis Cavallucci "Replicating TRIZ Reasoning through Deep Learning"
- Omar Boufeloussen and Denis Cavallucci "Bringing together engineering problems and basic science knowledge, one step closer to systematic invention"



## Day 3\_ Friday 24<sup>th</sup> September

**10:00** Keynote speech: Iouri Belski "TRIZ education: victories, defeats, and challenges"

**11:00** Break

**11:15** Presentation session "TRIZ training, education and divulgation"

*Chairs: Denis Cavallucci, Oliver Mayer*

- Ashley Edward Roy Soosay and Narayanan Kulathuramaiyer "Triz-based Remodelling of Multiple True-False Questions"
- Vasilii Kaliteevskii and Leonid Chechurin "TRIZ for problems of classical physics on the experience of the European project based on nanowires research."
- Peter Jantschgi "Simplified Trend system for TRIZ beginners"
- Harshika Singh, Hannah Nolte and Niccolo Becattini "Pedagogical approaches and course modality affecting students' self-efficacy and problem-solving attitudes in a TRIZ-oriented course"
- Tony Tanoyo, Jennifer Harlim and Iouri Belski "Facilitation of a creative culture through the implementation and initial evaluation of a TRIZ course within an organisation"
- Toru Nakagawa, Darrell Mann, Michael Orloff, Simon Dewulf, Simon Litvin and Valeri Souchkov





"World TRIZ-related Sites Project (WTSP) (4):  
World WTSP Catalogs of TRIZ and Around-TRIZ  
Sites, Let's Make Them Attractive and Useful!"

**12:15** Presentation session "TRIZ and Inventive Design"

*Chairs: Niccoló Becattini, Claudia Hentschel*

- Oleg Abramov, Alexander Medvedev and Natalia Tomashevskaya "Main Parameters of Value (MPV) Analysis: Where MPV Candidates Come From"
- Sebastien Dubois, Hicham Chibane, Lionel Hafer and Sébastien Trillat "A global approach to point out priority problems out of experts' qualitative data"
- Lorenzo Fiorineschi, Francesco Saverio Frillici and Federico Rotini "Integrated Use of TRIZ Tools in Systematic Conceptual Design"
- Stelian Brad "Domain analysis with TRIZ to define an effective "design for excellence" framework"
- Jochen Wessner "The Efficient Work with Resources in TRIZ - Resource-Oriented Search (ROS)"
- Muhammad Irshad Yehya, Amadou Coulibaly, Hicham Chibane and Remy Houssin "Solution Concept Modeling and Evaluation Based on Function- Structure and Behavior Approach in the Context of Inventive Design"
- Tom HJ Vaneker and Sascha Láoh "Improving the construction of RCA+ contradiction trees"

**13:25** Break



**14:15** Meetings, announcements and closing ceremony

*The ETRIA General Meeting will take place immediately afterwards*