FINAL REPORT
IFAC MIM 2019

DFG Deutsche Forschungsgemeinschaft

Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

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International Program Committee

International Program Committee (IPC)

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91 members from 30 countries

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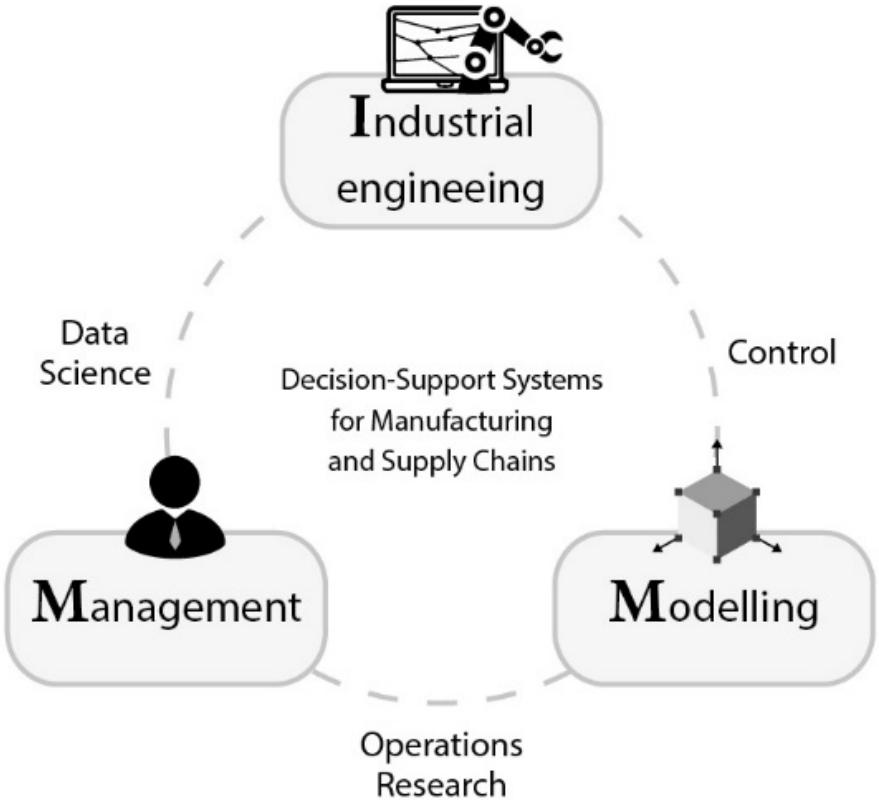
Scientific Program

Unique feature of MIM 2019 Conference: ***Multi-Disciplinarity***

MIM 2019 Mission:
Connect Control, Industrial Engineering, OR and Computer Science for better management decision-support systems in digital, resilient and sustainable manufacturing and supply chains in the era of Industry 4.0



The central theme of the 9th MIM 2019 is Digital, Resilient and Sustainable Manufacturing 4.0

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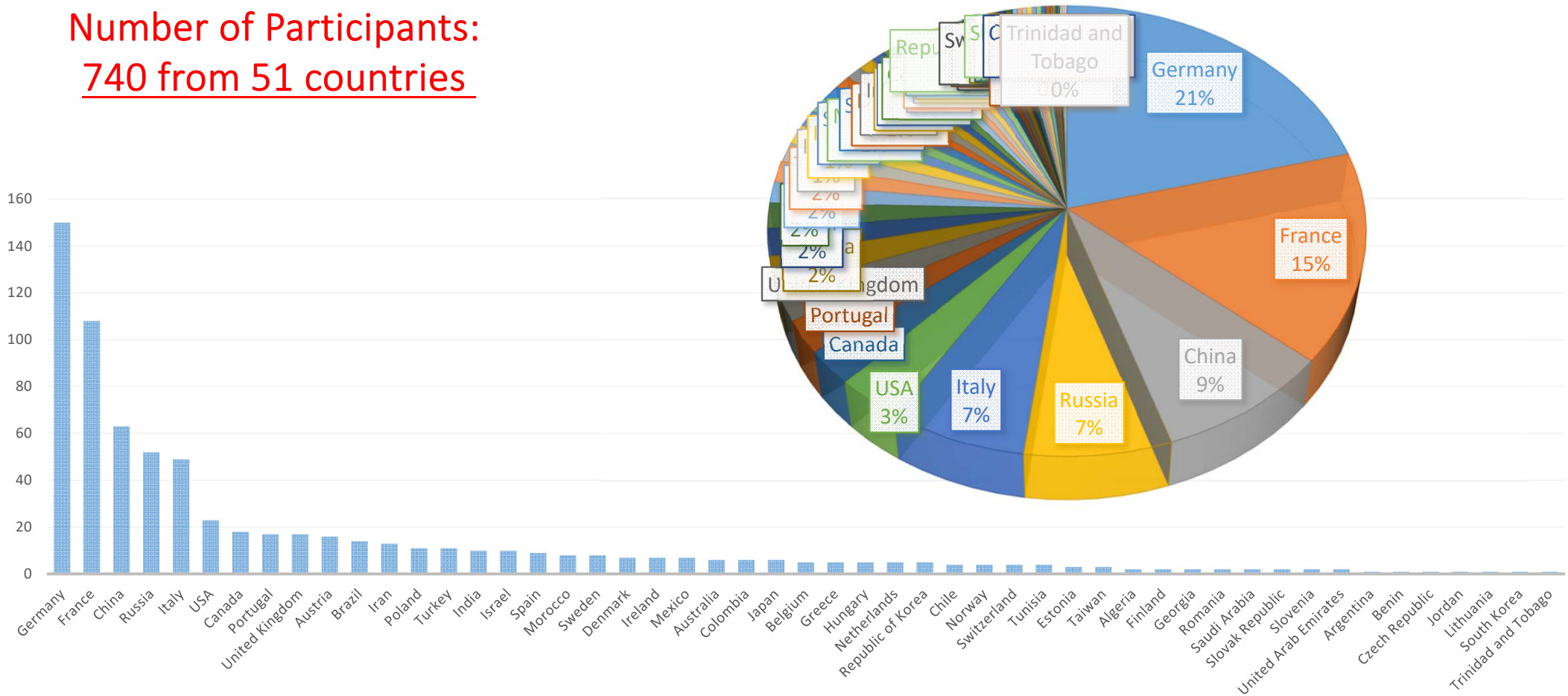
Participants MIM 2019

Number of Participants:
740 from 51 countries



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Scientific Program

Number of submissions	**870+ from 69 countries**
Number of Track and Session Proposals	**100**
Accepted submissions	**578**
Acceptance rate	**64.3%**
Number of presentations	**550+**
Number of sessions	**130+**
Number of authors	**1427 from 60 countries**
Number of reviewers	**700+ reviewers**
Number of participants	**740 from 51 countries**

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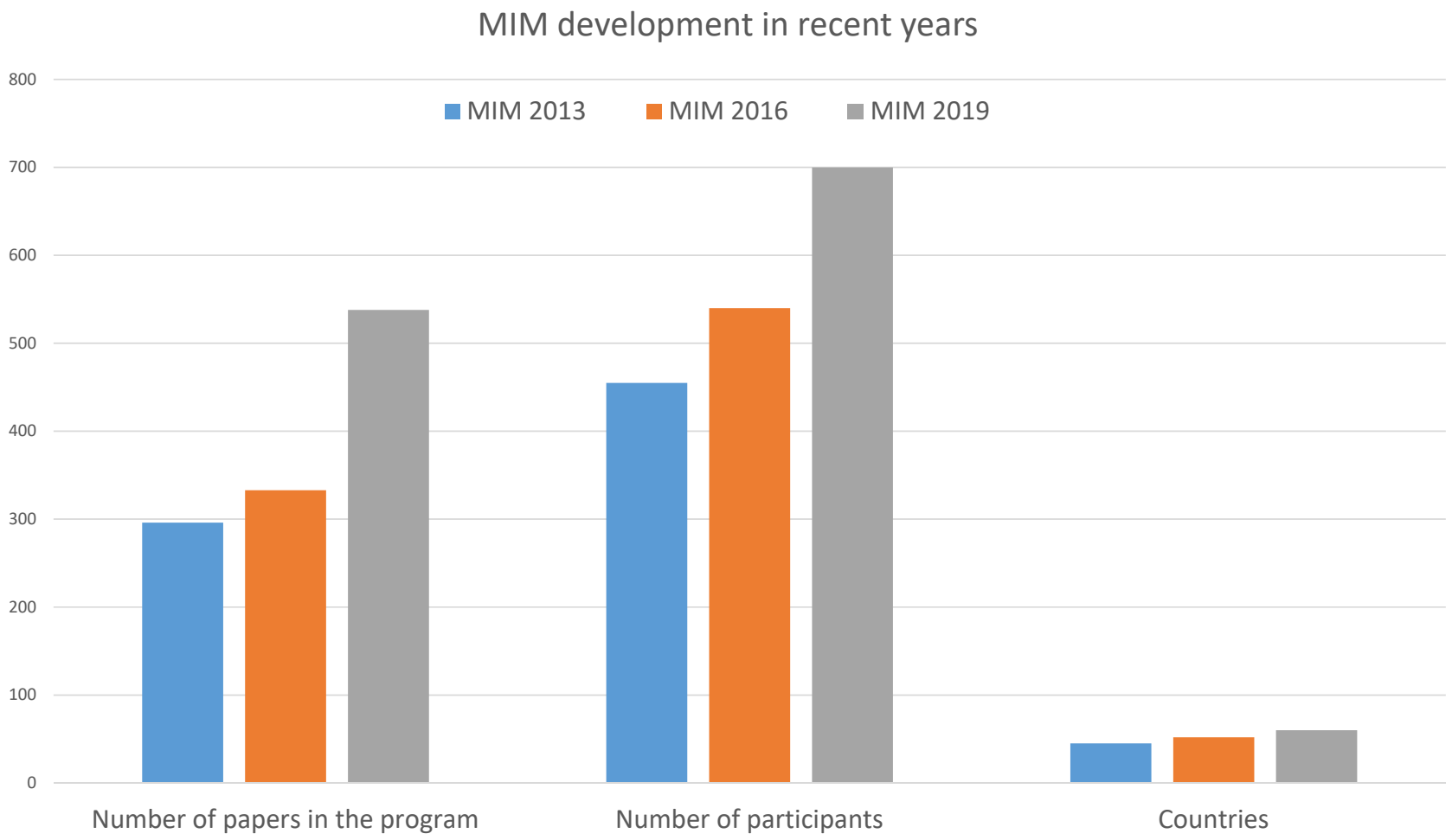
The biggest MIM ever



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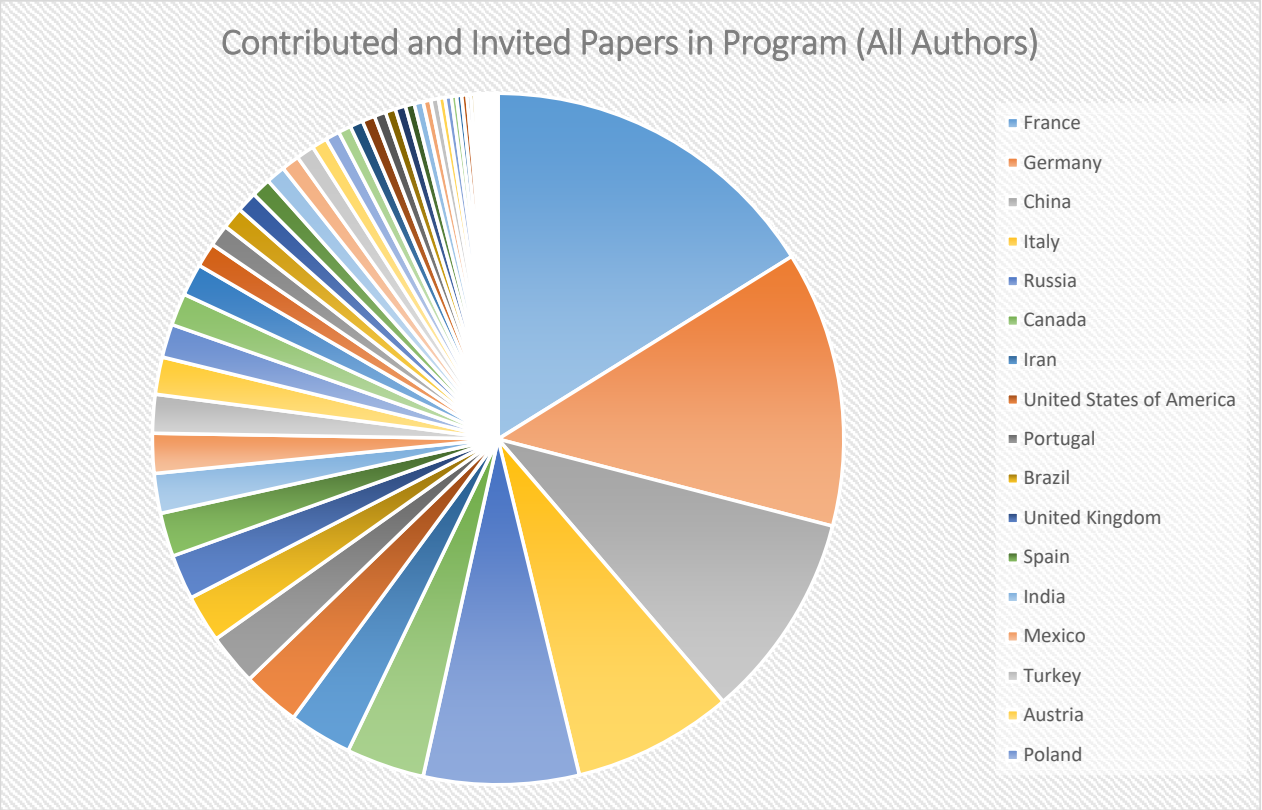
Papers in the program – authors from 60 countries

Country	Contributed and Invited Papers in Program (All Authors)
France	269
Germany	215
China	161
Italy	125
Russia	121
Canada	61
Iran	49
United States of America	45



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Conference Schedule

DAY 1 - August 28 - Wed			
8:00-17:00	Registration		
9:00-9:45	Opening session		
09:45-10:30	Plenary session I		
10:30-11:00	Coffee break		
11:00-12:30	Technical Sessions	SupplyOn Workshop	
12:30-13:30	Lunch		
13:30-15:00	Plenary sessions II and III		
15:00-15:30	Coffee break		
15:30-17:20	Technical Sessions	anyLogistix Workshop	Doctoral Workshop
19:00-23:30	Boat Trip		

DAY 2 - August 29 - Thu		
8:30-10:20	Technical Sessions	Meet the Editors (starts at 9:00 AM)
10:30-11:00	Coffee break	
11:00-11:45	Plenary sessions IV and V	
12:30-13:30	Lunch	
13:30-14:15	Plenary sessions VI and VII	
15:00-15:30	Coffee break	
15:30-17:20	Technical Sessions	TC 5.2 Meeting (by invitation only)
19:00-23:30	Gala Dinner	

DAY 3 - 30.08 - Fri			
8:30-10:20	Technical Sessions	Track Keynotes I and II (starts at 8:45 AM)	
10:30-11:00	Coffee break		
11:00-12:30	Technical Sessions	Track Keynotes III and IV	AnyLogic Workshop
12:30-13:30	Lunch		
13:30-15:00	Technical Sessions	Track Keynotes V an VI	IJPR EB Meeting (by invitation only)
15:00-15:30	Coffee break		
15:30-17:20	Technical Sessions		IJISM EB Meeting (by invitation only)
17:30-18:30	Closing ceremony		

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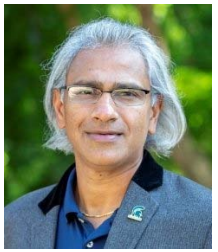
7 Plenaries

- Richard HARTL "*Solution approaches and incentive schemes in collaborative logistics planning*"
- Lenny KOH "*What really matters today and in the future – From physical to digital to autonomous*"
- Holger KOHL "*Modular Shopfloor-IT – Intelligent Process Management of Customer-Specific Products*"
- Andreas OROSZI *"Digitalization at Festo – Our way in digital transformation"*
- Boris SOKOLOV *"Planning and scheduling by optimal control: fundamentals and applications to cyber-physical and Industry 4.0 systems"*
- Srinivas (Sri) TALLURI *"Models for Evaluating and Monitoring Efficiency of Supply Chain Network Designs"*
- Christopher TANG *"Supply Chain Operations in the Industry 4.0 Era"*



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5 Keynotes

- **Cihan H. Dagli “Meta-Architectures for Cyber Manufacturing”**
- **Dorit S. Hochbaum “Adjacency-Clustering for Yield Prediction in Integrated Circuit Manufacturing”**
- **Erwin Pesch “Conflict-Free Yard Crane Routing in an Automated Container Terminal”**
- **Subhash C. Sarin "Lot Streaming“**
- **Manoj K. Tiwari "Manufacturing Analytics"**

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Meet the Editors

IFAC
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

Constantin Blome (IJOPM, EiC)
Alexandre Dolgui (IJPR, EiC)
Laszlo Monostori (CIRP Journal, EiC)

Thu., August 29, 9:00 – 10:20 AM; Audimax

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121 Technical Sessions

IFAC
INTERNATIONAL FEDERATION
OF AUTOMATIC CONTROL

Photo: Oana Popa-Costea

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Social Program

Gala-Dinner in the heart of Berlin at bcc (Alexanderplatz)

August 29, 7:00 PM

Photo: Oana Popa-Costea

Boat Trip

August 28, 7:00 PM

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Industrial Tours

Fraunhofer IPK: Industry 4.0 solutions in manufacturing

Stadler: Digitalization in rail manufacturing

BMW

Rolls Royce

Siemens

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Industrial Workshops

IFAC
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

anyLogistix Supply Chain Simulation and Optimization for Industry 4.0 and the Digital Transformation

SupplyOn: Big Data Analytics in Supply Chain Management: Practical Insights in Aerospace Supplier Collaboration

The AnyLogic Material Handling Library for New Disruptive Technologies of Industry 4.0

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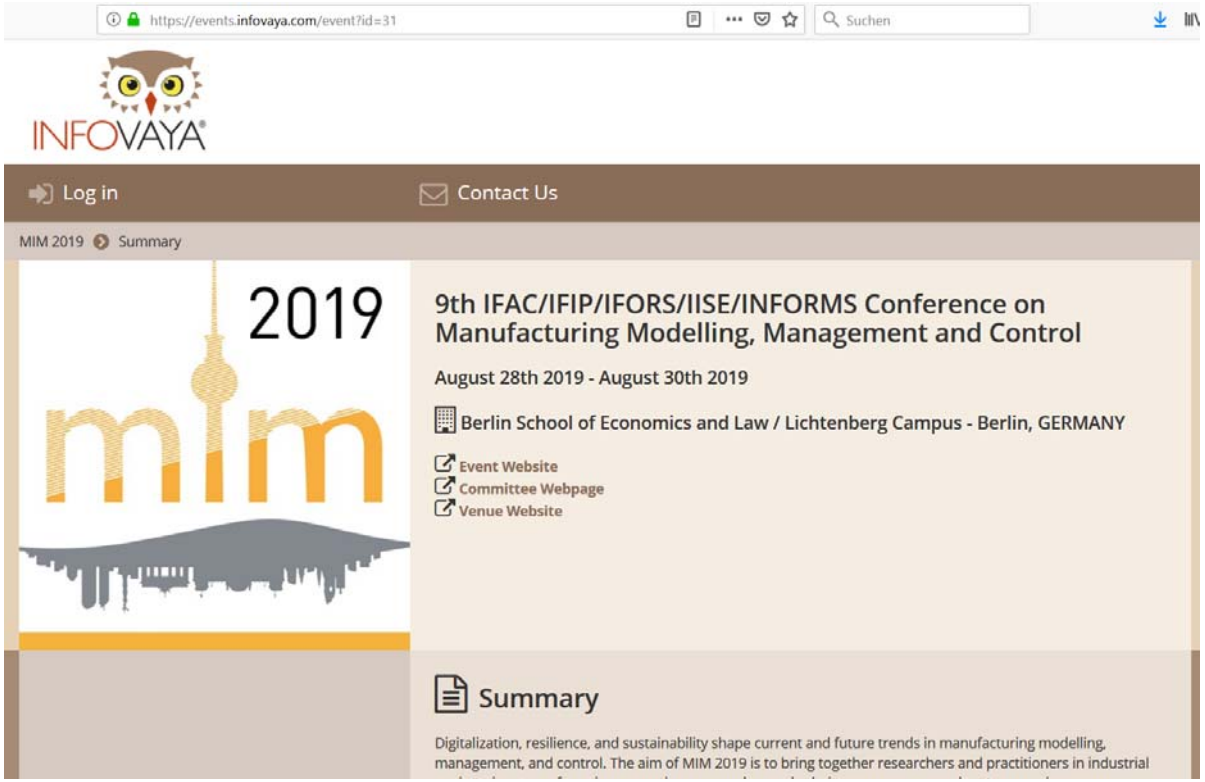
Conference Cloud Platform InfoVaya

https://events.infovaya.com/event?id=31

If you have registered for MIM 2019, you can login after you set your own password at https://events.infovaya.com/register



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Post-Conference Publications

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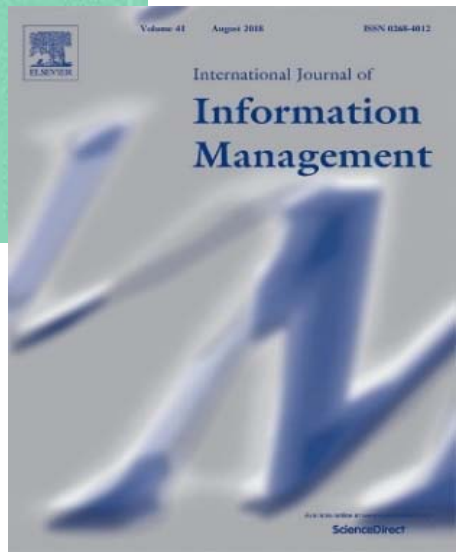
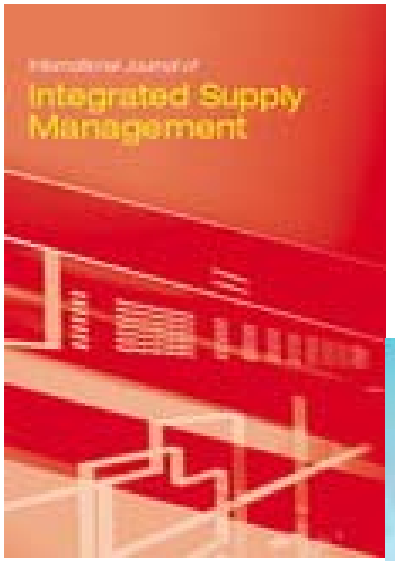
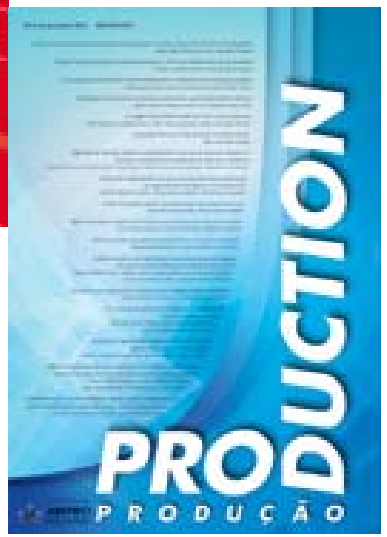
Post-Conference Special Issues







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Awards

Best Paper Award

IFAC Young Author Award

Best Industrial Paper Award

Commended Paper Awards

Photo: Oana Popa-Costea

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Commended Paper Awards

Liu, Ming; Liu, Xin	Machine Scheduling with Stochastic Release and Processing Times under Industry 4.0
Ma, Shigui; He, Yong; Yu, Yanan; Gu, Ran; Lyu, Hongjiang	Co-op advertising in a dynamic supply chain when supply is disrupted
Bocewicz, Grzegorz; Nielsen, Izabela; Banaszak, Zbigniew	A Decision Support Model for Prototyping In-Plant Milk-Run Traffic Systems
Rummukainen, Hannu; Nurminen, Jukka K.	Practical Reinforcement Learning - Experiences in Lot Scheduling Application
Mezzogori, Davide; Romagnoli, Giovanni; Zammori, Francesco	Deep Learning and WLC: How to Set Realistic Delivery Dates in High-Variety Manufacturing Systems
Cestana, Alessandro; Pastore, Erica; Alfieri, Arianna; Matta, Andrea	Reducing Resupply Time with Additive Manufacturing in Spare Part Supply Chain
Borstell, Hagen; Reggelin, Tobias	Towards Virtual Commissioning of Image-Based Information Systems for State Detection in Logistics

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Commended Paper Awards

Couzon, Paulin; OUAZENE, Yassine; Yalaoui, Farouk	Joint Pricing and Lot-Sizing Problem with Variable Capacity
Weckenborg, Christian; Spengler, Thomas S.	Assembly Line Balancing with Collaborative Robots under consideration of Ergonomics: a cost-oriented approach
Wu, Tong; Kemper, Maximilian; Stemmler, Sebastian; Abel, Dirk; Gries, Thomas	Model Predictive Control of the Weft Insertion in Air-Jet Weaving
Shen, Bin; Li, Qingying	Green Technology Adoption in Textile Supply Chains with Environmental Taxes: Production, Pricing, and Competition
Disney, Stephen; Ponte, Borja; Wang, Xun	The Nonlinear Dynamics of Order-Up-To Inventory Systems with Lost Sales
Achram, Larry; Alavian, Pooya; Eun, Yongssoon; Meerkov, Semyon M.; Zhang, Liang	Programmable Manufacturing Advisor for Smart Production Systems: Architecture, Analytics, Software, and Performance Demonstration
Tavakoli Kafiabad, Shayan; Kazemi Zanjani, Masoumeh; Nourelfath, Mustapha	Integrated Workforce Training and Operations Planning for Maintenance Service Providers

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Commended Paper Awards

Vespoli, Silvestro; Grassi, Andrea; Guizzi, Guido; Santillo, Liberatina Carmela	Evaluating the Advantages of a Novel Decentralised Scheduling Approach in the Industry 4.0 and Cloud Manufacturing Era
Lucker, Florian	Using Inventory to Mitigate the Ripple Effect
Klimchik, Alexandr; Pashkevich, Anatol; Chablat, Damien	Stiffness Modelling of NAVARO II Transmission System
Singh, Sube; Barde, Ankit; Mahanty, Biswajit; Tiwari, Manoj K	Digital Twin Driven Inclusive Manufacturing Using Emerging Technologies
Fontana Granotto, Giovanni; Sgarbossa, Fabio; Glock, Christoph; Grosse, Eric	The effect of worker fatigue on the performance of a bucket brigade order picking system
Ait Alla, Abderrahim; Kreutz, Markus; Rippel, Daniel; Lütjen, Michael; Freitag, Michael	Simulation-Based Analysis of the Interaction of a Physical and a Digital Twin in a Cyber-Physical Production System
Caputo, Antonio Casimiro; Pelagagge, Pacifico Marcello; Salini, Paolo	A Methodology to Estimate Resilience of Manufacturing Plants

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Best Industrial Paper Awards

Hofmann, Wladimir; Branding, Fredrik

have obtained the Best Industrial Paper Award of IFAC MIM 2019 Conference for the paper

"*Implementation of an IoT and Cloud-Based Digital Twin for Real-Time Decision Support in Port Operations*"

Moetz, André; Stylos-Duesmann, Philipp; Otto, Boris

have obtained the Best Industrial Paper Award of IFAC MIM 2019 Conference for the paper

"*Schedule Instability in Automotive Production Networks: The Development of a Network-Oriented Resequencing Method*"

Photo: Oana Popa-Costea

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IFAC Young Author Award Finalists

Serena Finco

for the paper entitled *Assembly Line Design with Tools Vibration*

co-authored by **Mohammed-Amine Abdous, Daria Battini, Martina Calzavara, Xavier Delorme**

Elluri Vignan Gupta

for the paper entitled *Optimal Control of Production and Maintenance Operations in Smart Custom Manufacturing Systems with Multiple Machines*

co-authored by **Dnyaneshwar Mogale and Manoj K. Tiwari**

Guangchen Wang

for the paper entitled *A Multi-Objective Whale Swarm Algorithm for Energy-Efficient Distributed Permutation Flow Shop Scheduling Problem with Sequence Dependent Setup Times*

co-authored by **Xinyu Li, Liang Gao, and Peigen Li**

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Best Paper Award

Hongyan Dai, Jiawei Tao, Hai Jiang, Weiwei Chen

have obtained the Best Paper Award of IFAC MIM 2019 Conference for the paper

"O2O On-Demand Delivery Optimization with Mixed Driver Forces"

presented at IFAC MIM 2019 at Berlin School of Economics and Law, Germany

Photo: Oana Popa-Costea

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Conclusion

"*Thank you very much for everything and the fantastic hospitality. I think the conference was a great success! I really enjoyed the sessions and all the other events*."
Prof. Srinivas (Sri) Talluri, Michigan State University, USA

"*I would like to congratulate you for the organisation of the extremely successful MIM 2019*!"
Prof. Laszlo Monostori, Hungary Academy of Science

"*Congratulations and thanks for the very excellent organization of the conference. The social activities have been simply great from the welcome reception to the very final dinner*".
Prof. Fabio Sgarbossa, NTNU, Trondheim, Norway

„*It was a wonderful and an excellent organisation of the conference. Simply amazing*. *In true sense it was a grand success*."
Prof. Manoj Tiwari, IIT Kharagpur, India

"*Congratulations! It was a great conference, in all aspects*."
Prof. Enzo Morosini Frazzon, UFSC, Florianapolis, Brasil

"*Congratulations with an exceptionally organized conference*!"
Prof. Semyon Meerkov, Michigan State University, USA

"*I very much enjoyed the conference and your hospitality*".
Prof. Cihan Dagli, Missouri S&T, USA

"*Thank you very much for the great organization of the conference. It was managed very efficiently and it collected very high quality papers*."
Dr Francesco Pilati, University of Bologna, Italy

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Conclusion

"*It seems you gathered all top supply chain expertise and scholars around the world*."
Dr. Mohsen Hosseini, University of Missisipi, USA

"*With the 9th IFAC MIM conference at your Berlin Campus, you posted a magnificent achievement! Congratulations on the great success of the Conference. A rare sight of meticulously planned and executed itineraries and high quality paper presentations. It was also a good networking event*."
Prof. Vandana Sonwaney, Symbiosis International University, India

"It was a fantastic experience in Berlin and the MIM 2019! Congratulations on the big success of the conference."
Prof. Weiwei Chen, Rutgers University, USA

"It was a great conference!! Great speakers, great technical sessions, great organization... definitely, it was an amazing experience! Thanks a lot!"
Prof. Daniel Rossit, Universidad Nacional del Sur, Argentina

"*Excellent MIM2019 in Berlin and many congratulations."*
Prof. Lenny Koh, Sheffield University, UK

"*Your conference was a success from all points of view. I thank you very much for your work in putting together such nice event*."
Prof. Mozart Menezes, NEOMA Business School, France

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Conclusion

"*Many thanks for the excellent organisation of the conference. I really enjoyed the sessions I have attended and the keynote presentations*."
Dr. Yingli Wang, Cardiff Business School, UK

"*It was a fantastic conference. Thank you and other organizing committee members very much for organizing such a great conference*."
Prof. Guoqing Zhang, University of Windsor, Canada

"*I thank you for the wonderful event of the 9. IFAC-MIM 2019, which took place last week in Berlin. During the conference I had the opportunity to network with interesting people and I had listen important presentations according my work. The organisation of the conference was very successful and last but not least the food was every day of very good quality and has been delicious*!"
Mr. Panagiotis Kilimis, BTU Cottbus-Senftenberg, Germany

"*I highly enjoyed the conference. It was a blast for me*!"
Mr. Nicolas Jathe, BIBA, University of Bremen, Germany

"*Thank you very much for the invitation to High Ranking Conference! Everything was at the top. My congratulations*."
Mr. Dmitri Muravev, PhD Student, Shanghai Jiao Tong University, China

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MIM 2019 in the Press

HWR Berlin Web Site: https://www.hwr-berlin.de/en/news/neuigkeiten/news-detail/1001-positive-bilanz-der-internationalen-konferenz-ifac-mim-2019/

Chris Tang blog: https://www.linkedin.com/pulse/plenary-talk-industry-40-mim-2109-conference-berlin-christopher-tang/?published=t

Arvid Holzwarth blog: https://www.supplyon.com/en/blog/manufacturing-40-how-supplyon-contributed-to-mim-2019/

Photo: Oana Popa-Costea

WE HOPE YOU ENJOYED IFAC MIM 2019!

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