



International Society for Structural and Multidisciplinary Optimization

Editors



Professor X. Shelly Zhang
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ISSMO NEWSLETTER

ISSUE

02

November
2021

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Message from the President, Dr. Wei Chen



I hope everyone is staying well during this challenging time. As the International Society of Structural and Multidisciplinary Optimization (ISSMO) celebrates its 30th Anniversary this year, it is my pleasure to share this annual update on our society activities.

Established in 1991 by founding President George Rozvany, ISSMO has grown from a close-knit technical community to a far-reaching international organization with about 1,400 members from 45 different countries and regions around the world. As the structural and multidisciplinary optimization (SMO) technical field advances, the primary mission of ISSMO remains bringing together international researchers and practitioners in the field for technical exchange. In addition to advancing research, we encourage industry applications and developing new teaching materials.

Although the conferences of some other professional societies are run by staff, ISSMO's conferences are mainly run by our volunteer members, keeping costs at a minimum in order to encourage participation from members all over the world. This year, the [14th World Congress of Structural and Multidisciplinary Optimization \(WCSMO 14\)](#) was held virtually June 14-18, 2021, with more than 590 attendees.

Despite the great uncertainty associated with the pandemic, the organizing team, led by Professor Kurt Maute from University of Colorado, Boulder (UCB), with members of Alireza Doostan (UCB), John Evans (UCB), Jamie Guest (JHU), and Julian Norato (University of Connecticut), did a phenomenal job in organizing a first-class interactive virtual conference. The conference attendees fully enjoyed the unique experiences a virtual conference can offer through attending creative socializing events and discussion roundtables. I would also like to express my appreciation for the dedication of Professor Alicia Kim (University of California San Diego) in leading the International Paper Committee (IPC) for this conference.

In addition to supporting conferences, the ISSMO Executive Committee (EC) has undertaken several special initiatives during the past year. First, the committee established the Haftka Young Investigator Award to recognize the achievements in early career researchers. Congratulations to Professor Niels Aage from Technical University of Denmark for receiving the inaugural award! Second, to focus on specific activities, new EC subcommittees were established for awards, diversity, the WCSMO conference, and benchmark studies, respectively. Third, to encourage more participation in committee activities by young researchers, we formed an Early Career special committee, for which I would like to acknowledge two young female researchers, Drs. Shelly Zhang and Hesaneh Kazemi, who have served

as both the annual Newsletter Editors and organizers for the Women Researchers' Networking Event.

During the COVID-19 pandemic, our technical exchange continues. As part of the effort to keep our community connected, I would like to thank our colleagues from the Technical University of Denmark (DTU) and TU Delft, who since May 2020 have been organizing monthly [TOP \(topology optimization\) Webinars](#) via Zoom. With close to 700 unique registrants, the TOP Webinars have effectively helped the community to exchange ideas and increase the impact of our work on the broader community.

The success of any technical division is largely based on the scholarly contributions of its members, collected in the form of journal papers. Therefore, I would especially like to thank Dr. Ming Zhou (Altair Engineering) and Professor Gengdong Cheng (Dalian University of Technology), for serving as the co-Editors-in-Chief of ***Structural and Multidisciplinary Optimization***. Through their dedication and the hard work of the Editorial Board, the impact factor of the journal has increased to **4.542** (2020).

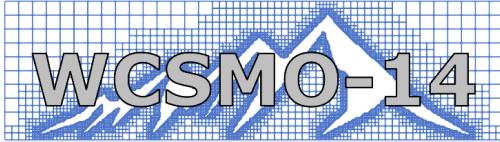
Finally, I would like to thank the current members of the [ISSMO Executive Committee](#) for their invaluable leadership, including past President Gengdong Cheng, past Secretary General James K. Guest, Alicia Kim as Secretary General, Qing Li and Ming Zhou as Vice Presidents, Eric Lund as Treasurer, and Pierre Duysinx, Xue Guo, and Ole Sigmund as members. Even

though we are located on different continents, the pandemic has brought us closer through the many Zoom meetings we had during the past year.

Looking forward, I would like to propose a few future directions. The field of SMO has experienced rapid growth in recent years, benefiting from the advances in related fields such as advanced manufacturing, computational mechanics, nanotechnology, and artificial intelligence. To create an even larger impact, we need to move beyond our comfort zone to work on new applications with societal impact, with colleagues from these related fields. Building on the success of our virtual conferences, our community should also find means to stay connected not only technically, but also socially. Even though we have seen many young researchers and female researchers join our community in recent years, there is still a long way to go for building a fully diversified community. Finally, we need to improve the outreach and publicity of ISSMO by collaborating on new initiatives with other communities.

Together, we intend to continue to foster technical exchange, stimulate new research directions, and make ISSMO as strong as possible. For more information on membership, events, and volunteer opportunities please visit our web site <https://www.issmo.net/>.

Prepared by Wei Chen
Wilson-Cook Professor in Engineering Design,
Northwestern University, USA.



14th World Congress of Structural and Multidisciplinary Optimization
June 13-18, 2021



WCSMO-14 was originally planned to take place at the beautiful campus of the University of Colorado Boulder in the US. Due to COVID-19, WCSMO-14 was moved to an all-virtual format and held on-line from June 13th-18th, 2021. The conference featured two invited plenary talks, four State-Of-The-Art (SOTA) talks on current and emerging research thrusts, and ISSMO's General assembly. More than 590 participants from 29 countries and regions listened to a total of 466 talks which were organized into 94 sessions, including three sessions in memoriam of Raphael "Rafi" T. Haftka. The book of abstracts can be found [here](#) and the final program can be downloaded [here](#). On average, each technical session was attended by 51 participants. Note that attendance was measured by the number of users who logged into a session but does not reflect the time the participants stayed in the session. A series of socializing events were organized to foster networking, to stimulate discussions around technical topics, and to provide career development advice for young investigators. These socializing events were very well attended, with participation ranging between 50 and well over 100.

The virtual format of WCSMO-14 introduced a few novel program components that were not part of previous WCSMOs. For example, the talks were pre-recorded, and participants could watch the talks online prior to the discussion of the talks during the technical sessions. The recordings were available two weeks prior and 6 weeks after the conference. Before the start of the conference on June 13, the recordings were watched a total of 5,420 times, with each recording being viewed 9 times on average.

During the conference, the recordings were watched 15,044 times, with each recording being viewed 32 times. And even after the conference on June 18, the recordings were watched 1,845 times. These numbers suggest that the recorded talks found a large audience. Pre-recording talks and making them available before and after the conference also provided added flexibility for the audience to "attend" talks of their specific interest. A post-conference survey showed overwhelming support for using pre-recorded talks in future WCSMOs.

Owing to the online availability of pre-recorded talks prior to the start of the conference, the format for the technical sessions was also different from previous WCSMOs. Each presenter introduced their talk with one summary slide in no more than 4 minutes. The introduction was followed by discussions of the talks which were organized in breakout rooms where each presentation was discussed separately. This allowed the authors and the audience to engage in in-depth discussions, and the audience could participate in discussions of talks that were part of different technical sessions held simultaneously. The post-conference survey also showed strong support for the technical session format used at WCSMO-14.

While the Local Organizing Committee tried to promote discussions and exchange of ideas through the conference format outlined above and through providing online meeting places, there is no doubt that in-person interactions and informal socializing were lacking at

WCSMO-14. However, the global climate crisis requires us to rethink how we participate in conferences. Thus, to end on a positive note, a rough estimate suggests that through the virtual format of WCSMO-14, i.e., by not traveling to Boulder, our community saved more than 15,000 metric tons of CO₂. This is roughly the amount of CO₂ 550 average persons in the U.S. emit per year.

The Local Organizing Committee would like to thank all participants for their outstanding contributions to WCSMO-14, specifically their in-depth discussions of the technical talks. Our special thanks go also to the session chairs, the plenary and SOTA talk speakers, the organizers of the socializing events, and the sponsors of WCSMO-14: Altair, Simulia, and Springer. We also would like to express our gratitude to the International Paper Committee and the ISSMO executive committee.

Prepared by:

Kurt Maute, Professor, University of Colorado Boulder, USA,

Alireza Doostan, Professor, University of Colorado Boulder, USA,

John Evans, Assistant Professor, University of Colorado Boulder, USA,

James Guest, Associate Professor and Interim Chair, Johns Hopkins Whiting School of Engineering, USA,

Julian Norato, Assistant Professor, University of Connecticut, USA.

The WCSMO-14 Local Organizing Committee

ISSMO Women Networking Events

Event flyer

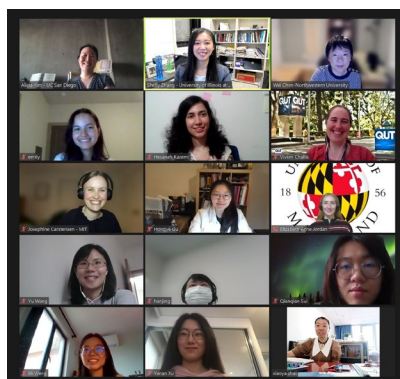
The ISSMO Women Networking Event series were held during the WCSMO-14 via Zoom. This event series aimed at creating a venue for junior and senior women researchers from varying backgrounds to share their career paths, career development options, work-life balance, and become mentors or mentees. The event also served as a platform for researchers to discuss research interests and establish collaborations.

Two 1-hour mentoring/networking sessions were held featuring six female panelists, with Dr. Wei Chen, Dr. H. Alicia Kim, and Dr. Josephine V. Carstensen in the first session, and Dr. Rekha Rao, Dr. Lucia Mirabella, and Dr. Hortense Gerardo in the second session. The panelists shared their diverse

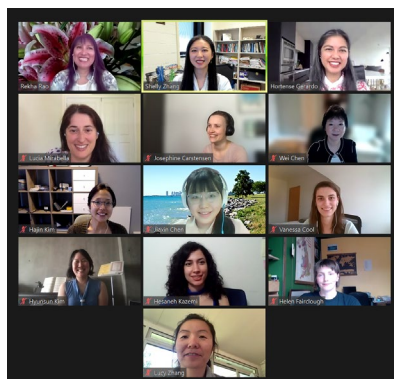


The flyer for the ISSMO Women Networking event includes the ISSMO logo, the title 'ISSMO Women Networking', and a description of two virtual events with six panelists. It provides a sign-up link, contact information for Shelly Zhang, and lists the panelists for two sessions: 'A Path to Successful Career - Part I' on Sunday, June 13, and 'Part II' on Thursday, June 17. Each session lists three panelists with their names and affiliations.

Session I participants



Session II participants



and unique experiences and inspiring career paths. In addition, various topics were discussed, including job-hunting processes in academia, national labs, and industry as well as aspects/skills that candidates should pay attention to develop, and strategies to maintain a healthy work-life balance. In total, we have 37 participants in the events.

Prepared by Shelly Zhang

Assistant Professor,

University of Illinois at Urbana-Champaign, USA.

Call for proposals to hold WCSMO 15

Deadline: 19 November 2021

WCSMO brings together researchers and practitioners in the field of structural and multidisciplinary optimization, by means of international meetings having a high scientific standard. Preference is given to proposals that ensure the geographical diversity. This is meant to imply a reasonably uniform distribution of congresses over three zones, namely Asia-Australia, Europe-Africa and North & South Americas.

Selection criteria include:

- up-to-date conference facilities,
- affordable costs to all members of the society (including registration, hotel, travel expenses, considering also free lunches, banquet, excursions etc.),
- proven congress organizing experience and strength of the local organizing group,
- geographical diversity reflecting the distribution of SMO researchers over the world.

The congress should be held within the mid-May — mid-June period and expected to last between 4.5 and 5 days. The proposers are encouraged to be creative and make the most of the latest technology. A detailed guideline for consideration is listed in our website [Call for Proposals to hold WCSMO-15 \(issmo.net\)](https://www.issmo.net). It is recommended that the proposal contains letters of endorsement from institutions, universities, and organizations that will support the proposers in organizing the Congress.

Please send the proposals to Dr. H Alicia Kim, alicia@ucsd.edu

Meet the winner of Haftka Young Investigator Award 2021

Professor Niels Aage

Technical University of Denmark

“The award recognizes his outstanding research achievements and contributions in large scale topology optimization and topology optimization across multiple physics, as well as his tremendously impactful contributions to the ISSMO community including the creation of open source software and free apps that have enabled researchers with new capabilities, educated students, and broadly promoted ISSMO research areas.”



Shelly: Congratulations on being awarded the inaugural ISSMO Haftka Young Investigator Award – a very well-deserved honor! It is quite inspiring to see your success and achievements. I am wondering what attracted you to the field of topology optimization?

Niels: Back in my bachelor studies I took a course on applied mathematics where one of the teachers – Dr. Allan Roulund Gersborg - introduced us to topology optimization. After seeing his first animation of a stiffness optimized design appearing out of seemingly thin air, I was hooked and knew that was something I had to learn a lot more about.

S: This is related to the first question, what has kept you passionate about your research in topology optimization?

N: To me, one of the most amazing things about topology optimization is the enormous span of physical disciplines for which it applies. I mean, I started out doing compliance minimization, then did my BSc on fluid optimization, my MSc on photonic crystals and have been working with many different types of (multi-)physics since then. Not to forget the computer science side to the whole thing. All in all, I like to think that topology optimization is an umbrella that encompasses more or less every engineering discipline out there. With that kind of variety, I cannot see how we could ever run out of new challenges and I am sure that knowing this, really helps to keep me motivated.

S: What is the accomplishment that you are the proudest of?

N: The honest answer is – and will probably always be - the latest piece of research I've been part of. However, if looking back at the past ten years, the whole process of getting the giga-voxel paper accepted in Nature stands out as something quite special. First, we had to stand by our belief that we had something that would interest people outside our research community and subsequently, we had to work very hard to get it through the needles eye. Hard work that pays off in the end is just the best feeling.

S: Would you have any outlook for the future in topology optimization: what exciting innovations or developments do you predict will happen in this field in the next 10 years?

N: A famous, old Danish saying goes something like this (at least we're taught in school it's a Danish saying!): “To predict is difficult, especially about the future”. So predictions reaching 10 years into the future should be taken with a grain of salt. So I would rather state a wish instead, which is that I hope we in 10 years will be able to perform interactive, giga-scale topology optimization of real-world engineering problems at an affordable computational cost.

S: You have been quite successful in your research, what are your secrets in coming up with innovative ideas?

N: First of all, I am lucky to have a lot of great and smart colleagues that I can discuss new ideas with on a regular basis. So many ideas

come from a direct consequence of such discussions and mail exchanges. Another great source of inspiration for new research ideas (for which you do not need anybody else but yourself) is to look at the literature on numerical methods in engineering and physics that does not already deal with optimization. Prof. Ole Sigmund has summed it up nice and compact: If they can model it, we can optimize it!

S: Would you have any suggestions for fellow junior researchers on research aspects?

N: Stay stubborn. I mean, good ideas might not be seen as good ideas when first formulated. So if you strongly believe that you're onto something cool, keep at it, don't overthink it and follow through with hard work.

S: Any advice for fellow junior researchers on non-research aspects?

N: This is surely different from person to person, so what works for me, does not necessarily work for anybody else. But I do think it is really important to do some sports, play music or to have some other hobby. Hobbies of any kind provides an excellent place to clear your mind and build up new energy. And sometimes you inadvertently solve your current bugs/problems or even come up with new ideas while being focused on something else than your actual research.

S: Anything else that you would like to add?

N: Yes – a huge thanks to ISSMO for honoring me with the Haftka young investigator award 😊

Prepared by

Niels Aage, Associate Professor, Technical University of Denmark, Denmark,

Shelly Zhang, Assistant Professor, University of Illinois at Urbana-Champaign, USA.

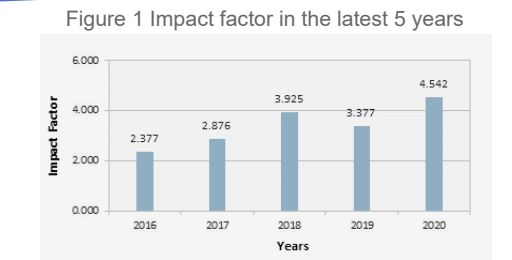
Haftka Young Investigator Award recognizes outstanding researchers early in their careers for achievements and promising groundbreaking research in the field of structural and multidisciplinary optimization. This new award has been named in honor of the foundational research contributions of Professor Raphael T. Haftka and recognizes his passion for mentoring young researchers.

SMO Journal Status Update

1. 2020 impact factor of our journal increased from 3.377 to 4.542 (see Fig. 1)! SMO now ranks #14 among 91 journals in the category 'Multidisciplinary Engineering', and is also in Q1 in 'Mechanics' and Q2 in 'Computer Science Interdisciplinary Applications'. The journal's Editor-in-Chief role transitioned smoothly in August 2020 from Rafi Hafka to Ming Zhou and Helder Rodrigues. Then Helder handed his role over to Gengdong Cheng at the end of 2020 so he can focus on personal priorities. We want to thank Helder for his valuable contributions to keeping the journal sailing smoothly during the trying times when Rafi passed away suddenly on August 16, 2020, shortly after the EiC handover. Rafi was still corresponding with us on the journal to the last days of his life. He would be thrilled about the significant leap of the journal's impact, which is mostly due to his continued editorial initiatives. We also want to credit the success to the outstanding contributions of our vibrant research community and the excellent work of the reviewers and the Review Editor team.

2. The journal operates with a unique editorial process where the around 40 Review Editors volunteer for handling peer-review process. This system was invented by the founding Editor-in-Chief George Rozvany, and further enhanced by his successor Rafi Hafka formally crediting the Handling Editor in each published paper. This flexible voluntary system contributes significant to the speed and quality of peer review. In the past year, we welcomed the following new review editors to the editorial team: Shikui Chen, Tae Hee Lee, Matthew Gilbert, Makoto Ohsaki, Matias Stolpe, Graeme Kennedy, Chao Hu, Shelly Zhang, Josephine Carstensen.

3. We refreshed the Journal scope with an inspirational/aspirational headline that highlights the important contributions of our field: Structural and Multidisciplinary Optimization is at the converging frontier of design, engineering, simulation, additive manufacturing, AI and digital-twins. The field has become increasingly important for improving environmental sustainability and combating climate change through enhancing efficiency of engineering products.



4. We implemented major journal production enhancements aimed at improving author experience and paper processing speed and quality. We hope to achieve an ambitious goal - shortening average submission to publication time to six months. These major enhancements are the results of continuing effort and focus from Silvia, Rafi, Gengdong and Ming.
- We transitioned smoothly to a new production team with streamlined TeX file processing and e-proofing for author corrections.
 - We will move to continuous publication in 2022 – online publication carries unique cite ID and page count that is consistent with printed issues.

5. A special issue dedicated to Rafi Haftka will be published as the November 2021 issue.

6. Three special issues are planned. Please contact the lead guest editor for further information if interested in contributing:

- WCSMO-14: targeted for May 2022, Guest Editors: Yoojeong Noh (yoonoh@pusan.ac.kr), Julian Norato, Josephine Carstensen, Palaniappan Ramu, Erdem Acar, James Guest.
- Flow-based Multiphysics: targeted for June 2022, Guest Editors: (joal@sdu.dk), Casper Schousboe Andreasen, Kentaro Yaji, Kyriakos Giannakoglou, Kurt Maute.
- Advanced Optimization Enabling Digital Twin Technology: targeted for July 2022, Guest Editors: Chao Hu (chaohu@iastate.edu), Vicente A. González, Taejin Kim, Omer San, Pai Zheng

7. We want to congratulate authors whose papers were most downloaded and most cited (see Fig. 2 and Fig. 3).

Figure 2 Top 10 Full-Text Article Request 2020 (all publication years)

Title	Author	Article Types	Volume	Issue	Year*	Article Requests 2020
An efficient 3D topology optimization code written in Matlab	Kai Liu, Andrés Tovar	Continuing Education	50	6	2014	9,260
Topology optimization approaches	Ole Sigmund, Kurt Maute	Original Paper	48	6	2013	5,314
OpenMDAO: an open-source framework for multidisciplinary design, analysis, and optimization	Justin S. Gray et al.	Original Paper	59	4	2019	5,188
Efficient topology optimization in MATLAB using 88 lines of code	Erik Andreassen et al.	Continuing Education	43	1	2011	5,131
Current and future trends in topology optimization for additive manufacturing	Jikai Liu et al.	Review Paper	57	6	2018	4,506
A MATLAB code for topology optimization using the geometry projection method	Hollis Smith, Julián A. Norato	Continuing Education	62	3	2020	3,168
A 99 line topology optimization code written in Matlab	O. Sigmund	Original Paper	21	2	2001	2,592
Space-time topology optimization for additive manufacturing	Weiming Wang, Dirk Munro, Charlie C. L. Wang, Fred van Keulen, Jun Wu	Original Paper	61	1	2020	2,565
A Python script for adaptive layout optimization of trusses	Linwei He, Matthew Gilbert, Xingyi Song	Continuing Education	60	2	2019	2,354
On projection methods, convergence and robust formulations in topology optimization	Fengwen Wang, Boyan Stefanov Lazarov, Ole Sigmund	Original Paper	43	6	2011	1,907

Figure 3 Top Ranking Highest Cited 2018-2019 Articles for IF (Impact Factor) Year 2020

Title	Author	Publication Type	Publication Date	DOI	Volume	Issue	Total Citations*	Citations for IF 2020
Current and future trends in topology optimization for additive manufacturing	Liu, Jikai; Gaynor, Andrew T.; Chen, Shikui; Kang, Zhan; Suresh, Krishnan; Takezawa, Akihiro; Li, Lei; Kato, Junji; Tang, Jinyuan; Wang, Charlie C. L.; Cheng, Lin; Liang, Xuan; To, Albert C.	Review	01-06-2018	10.1007/s00158-018-1994-3	57	6	214	94
A survey of adaptive sampling for global metamodeling in support of simulation-based complex engineering design	Liu, Haitao; Ong, Yew-Soon; Cai, Jianfei	Review	01-01-2018	10.1007/s00158-017-1739-8	57	1	89	35
An importance learning method for non-probabilistic reliability analysis and optimization	Meng, Zeng; Zhang, Dequan; Li, Gang; Yu, Bo	Article	01-04-2019	10.1007/s00158-018-2128-7	59	4	49	35
An 88-line MATLAB code for the parameterized level set method based topology optimization using radial basis functions	Wei, Peng; Li, Zuyun; Li, Xueping; Wang, Michael Yu	Article	01-08-2018	10.1007/s00158-018-1904-8	58	2	75	33
An efficient Kriging-based subset simulation method for hybrid reliability analysis under random and interval variables with small failure probability	Xiao, Mi; Zhang, Jinhao; Gao, Liang; Lee, Soobum; Eshghi, Amin Toghi	Article	01-06-2019	10.1007/s00158-018-2176-2	59	6	55	30

Prepared by

Ming Zhou, Senior Vice President Structural Analysis and Optimization, Altair Engineering,
Gengdong Cheng, Professor, Dalian University of Technology, China,
Silvia Schilgerius, Senior Publishing Editor at Springer.

Welcome to Join the TOP Webinar

The monthly TOP webinar continues to attract a broad audience in our structural and multidisciplinary optimization community.

Started in May 2020, the monthly TOP Webinar series now consists of 14 webinars, and in total 69 presentations. They were chaired, in a chronological order, by Fred van Keulen, Ole Sigmund & Niels Aage, Gengdong Cheng & Xu Guo, James K. Guest, Qing Li, Niels Aage, Julián Norato, Shinji Nishiwaki, Wei Chen & Shelly Zhang, Joe Alexandersen, Emilio Carlos Nelli Silva, Matthijs Langelaar, Bin Niu & Jun Yan, and Josephine Carstensen. The forthcoming three webinars will be organized by Mattias Schevenels, Yi Min 'Mike' Xie, and Natasha Vermaak. This reflects the geographic diversity, in line with the ISSMO Constitution. Similar to the distribution of chairs, we have speakers reflecting the distribution of ISSMO researchers over the world.

We take this opportunity to thank our chairs, speakers, and participants around the world for joining this event and sharing their knowledge.

14 webinars
69 presentations
140+ attendees / webinar, on average
674+ unique registrants
6000+ views on YouTube, in total

The webinars comprise general and thematic sessions. A general session may cover multiple topics in and related to topology optimization, while a thematic session more focuses on a specific one. The topics of thematic sessions are also expected to be of interest to a broad audience in topology optimization. The thematic sessions so far include large-scale and efficient approaches, data-driven approaches, flow-based problems, and topology optimization for manufacturing.

The TOP Webinar is initiated by colleagues at TU Delft and DTU Denmark. It serves the broad structural and multidisciplinary optimization community, with a focus on topology



www.top-webinar.org



optimization. The intention is to share the latest research and development in this field, and by doing so, to keep our community connected.

The TOP Webinar is endorsed by the International Society for Structural and Multidisciplinary Optimization (ISSMO).

Organizers:

Jun Wu, Assistant Professor, Delft University of Technology, Netherlands,

Matthijs Langelaar, Associate Professor, Delft University of Technology, Netherlands,

Fred van Keulen, Professor, Delft University of Technology, Netherlands,

Niels Aage, Associate Professor, Technical University of Denmark, Denmark,

Ole Sigmund, Professor, Technical University of Denmark, Denmark.

For more information and future schedule, please visit www.top-webinar.org. Here you also find links to recorded videos on YouTube and Bilibili. If you would like to receive announcement emails, please register via this form,

https://docs.google.com/forms/d/e/1FAIpQLSf8ahNvQ1o6IVqr3IeRKN-78I5uTYFa-REmnl-JS6SPy46ZxA/viewform?usp=sf_link

or send a message to topwebinar.org@gmail.com

ASME Journal of Mechanical Design Webinars

The Journal of Mechanical Design Webinar is a series of webinars organized quarterly to feature interesting research work being published in the **Journal of Mechanical Design (JMD)**. The goal is to share the latest research and development in the field, and by doing so, to keep our community connected.

The webinar takes place online quarterly and features invited presentations of recently published/accepted articles in JMD. So far the webinar has featured three thematic topics: (1) Data-Driven Approaches for Engineering Design, (2) Team Science in Engineering Design, and (3) Design for Additive Manufacturing. Each JMD webinar includes a **90-minute Zoom webinar session** and a **30-minute gather.town session** for further discussion/networking. Register and watch past recordings at <https://asmejmd.org/webinar-2/>.

Upcoming ISSMO Endorsed Events

AIAA AVIATION Forum: 27 June–1 July 2022, Hilton Chicago, Chicago IL, USA



25th International Congress of Theoretical and Applied Mechanics: 22–27 August 2021 (virtual)



14th WCCM and ECCOMAS Congress 2020, 11–15 January, 2020 (virtual)



ASMO-UK12 / ASMO-Europe 1 / ISSMO Conference on Engineering Design Optimization: 23–24 July 2021, Leeds, UK



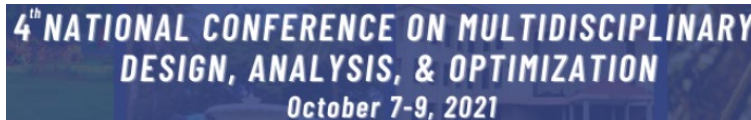
ACSMO 2022 (Asian Congress of Structural and Multidisciplinary Optimization 2022): 22–26 May 2022, Matsue, Japan



AIAA SciTech Forum: 3–7 January 2022, Manchester Grand Hyatt, San Diego CA, USA



National Conf. on Multidisciplinary Analysis and Optimization (NCMDAO): 7–9 October 2021, India



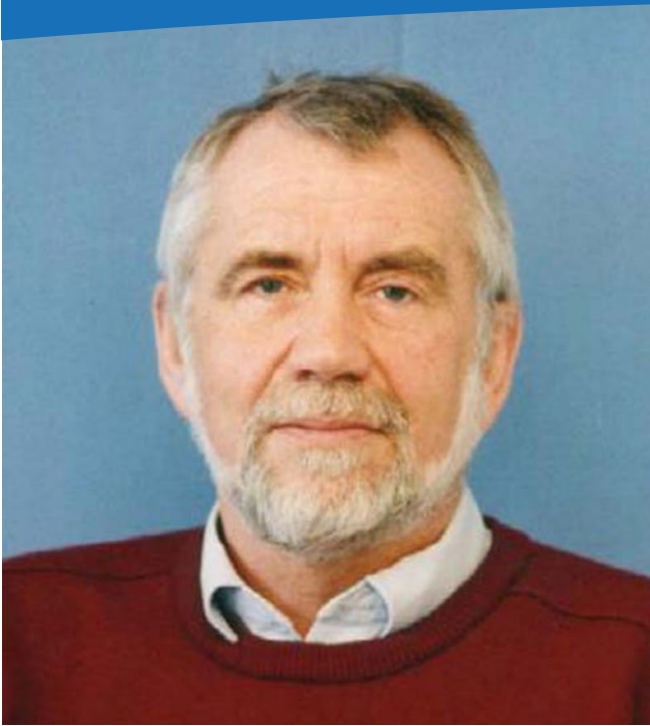
16th U.S. National Congress on Computational Mechanics: 25–29 July 2021, Chicago IL, USA (virtual)

16th U.S. National Congress on Computational Mechanics

Call For Volunteers

ISSMO is determined to increase diversity and inclusion among its community and create opportunities for young researchers to develop their career. We welcome enthusiastic volunteers to work on different new initiatives, and provide us with their unique perspectives and capabilities in various capacities. If you are interested, please send a one-page CV along with a one-paragraph description of what you would like to achieve by serving the ISSMO community to Dr. Alicia Kim.

Obituary: Dr. Pauli Pedersen (1937 - 2021)



With great sadness, we announce that our dear colleague, long time friend and strong contributor to our field, Pauli Pedersen passed away Monday August 16th, 2021. Pauli retired as Professor at the Technical University of Denmark in 2005 but stayed

active as Emeritus Professor until recently. Pauli was known for many important contributions to the fields of dynamic stability and structural optimization. His probably most known and cited work is the one on optimal orientations of orthotropic Materials (*Structural optimization* 1(2) (1989): 101-106, <https://link.springer.com/article/10.1007/BF01637666>). His background and many contributions to the field were summarized in the foreword to a special SMO issue in honour of Pauli's 70th birthday, written by Daniel Tortorelli ("Special issue to honour Pauli Pedersen" (2007): 275-283, <https://link.springer.com/content/pdf/10.1007/s00158-006-0090-2.pdf>). In the years following, Pauli as emeritus professor published another 26 scientific papers.

Pauli Pedersen will be remembered by his many colleagues and friends as an enthusiastic and open-minded person whose house and office always were open for visitors and collaborators from all over the world. He will be dearly missed.

Prepared by

Martin Bendsøe, Professor Emeritus, Technical University of Denmark, Denmark,

Ole Sigmund, Professor, Technical University of Denmark, Denmark.

Obituary: Dr. Manav Bhatia (passed on April 15, 2021)



The Structural and Multidisciplinary Optimization (SMO) community mourns the loss of Professor Manav Bhatia. Manav Bhatia obtained his PhD in 2007 from the University of Washington, Seattle WA where he worked on the problem of computational design procedures for high-speed flight vehicles. He gained industry experience as a Loads and Dynamics Engineer at Aviation Partners Boeing, Seattle WA, before moving to Virginia Tech as a Postdoctoral Research Associate. He worked as a Research Engineer at the Air Force Research Laboratory, Wright Patterson Air Force Base from Jan 2012 to Aug 2014, after which he joined the Department of Aerospace Engineering at Mississippi State University as an Assistant Professor. His primary research interest was in multi-physics computational mechanics and its application to the design of engineering systems.

Prepared by Hesaneh Kazemi

Postdoctoral Scholar,

University of California at San Diego, USA.

Current Society Status

WCSMO-14 Statistics - Participation

- 567 abstracts were submitted from 31 countries/regions
- 542 abstracts accepted (no posters)
- 478 presentations
- 586 registrations from 31 countries/regions

WCSMO-1 (Goslar), 232 papers were submitted

WCSMO-2 (Zakopane), 188 papers were submitted

WCSMO-4 (Dalian), 222 papers were submitted

WCSMO-5 (Lido di Jesolo), 286 papers were submitted

WCSMO-6 (Rio de Janeiro), 564 papers were submitted

WCSMO-7 (Seoul), 419 papers were submitted

WCSMO-8 (Lisbon), 647 papers were submitted

WCSMO-9 (Shizuoka), 407 papers were submitted

WCSMO-10 (Orlando), 470 papers were submitted

WCSMO-11 (Sydney), 447 papers were submitted

WCSMO-12 (Braunschweig), 557 papers were submitted

WCSMO-13 (Beijing), 619 papers were submitted

Table 1 WCSMO-14 Statistics – Presentations (countries and regions)

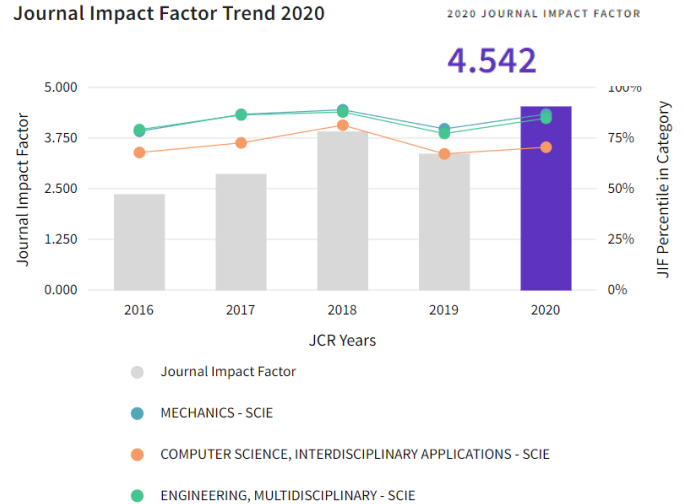
China	130	Italy	5
USA	114	Canada	4
Germany	60	South Africa	4
Japan	52	Austria	4
France	30	Colombia	3
Korea	30	Hungary	2
Denmark	24	Spain	2
United Kingdom	20	Taiwan	2
Australia	18	Czech Republic	1
Belgium	16	Estonia	1
Netherlands	16	French Polynesia	1
Sweden	12	Morocco	1
Poland	11	Switzerland	1
Brazil	9	Turkey	1
India	7	United States Minor Outlying Islands	1
Israel	4		

Table 2 Budget May 2019 – June 2021

	Euro	DKK
Balance – May 2019 (reported at WCSMO-13, Beijing):	52,010	386,957
ISSMO membership fees from WCSMO-13, Beijing	18,899	140,607
Interest income (negative interest)	-692	-5,150
ISSMO Web (website update 2019, hosting & 2 year support):	-3,349	-24,913
ISSMO Stamp	-49	-365
ISSMO/Springer Prize (2 x USD 1,000)	-1,831	-13,624
Bank account charge and fees	-175	-1,305
Balance – June 2021 (prior to WCSMO-14, Boulder):	64,813	482,207

Journal of Structural and Multidisciplinary Optimization Impact Factor

Journal Impact Factor Trend 2020

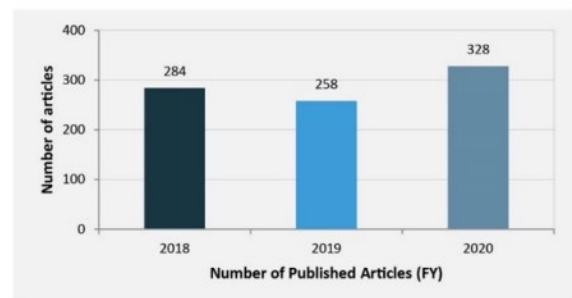


Ranking within categories in IF Year 2020

Category Name	Total Journals in Category	Journal Rank in Category	Quartile in Category
ENGINEERING, MULTIDISCIPLINARY	91	14	Q1
MECHANICS	136	18	Q1
COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS	112	33	Q2

Production

Number of Published Articles (FY)



ISSMO Membership

	Members	Percentage
Americas	189	13.8%
Asia-Australia	740	53.9%
Europe-Africa	444	32.3%
Total Members	1373	



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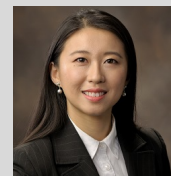


Professor George Rozvany
(1930 - 2015)

Becoming A Member

For membership listing and approval, please visit <https://www.issmo.net/membership/join-issmo/> and submit your information. If you have any difficulty, please email a resume with a list of publications to Secretary General. Associate membership is granted upon recommendation of one of the members of the executive committee based on record of activity in the field of Structural or Multidisciplinary Optimization. Full membership requires attendance of at least one of the World Congresses of Structural and Multidisciplinary Optimization.

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