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ISSMO NEWSLETTER

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This issue

Message from the President, Dr. Wei Chen **P.2**

Obituary: Dr. Raphael T. Haftka **P.3**

WCSMO 13 Beijing, China, May 20-24, 2019 **P.4**

2019 ISSMO Award **P.5**

Haftka Young Investigator Award Announcement **P.5**

WCSMO 14 Announcement **P.6**

SMO Journal Summary **P.7**

SMO Special Issue for WCSMO 13 **P.8**

TOP Webinar **P.9**

Upcoming ISSMO Endorsed Events **P.10**

Call For Volunteers **P.10**

Current Society Status **P.11**

Executive and Special Committees **P.12**

Message from the President, Dr. Wei Chen



I hope everyone is staying well during this challenging time. In spite of the COVID-19 pandemic, our community has remained strong and continues to work together to produce outstanding research. It is, therefore, my honor to present this inaugural newsletter of the International Society for Structural and Multidisciplinary Optimization (ISSMO), both to recognize the dedicated work of its members and champion the initiatives underway that continue to make our society stronger.

Since its establishment in 1991 by founding President George Rozvany, ISSMO has grown from a close-knit technical community with focused expertise on structural and multidisciplinary optimization (SMO) to a far-reaching international organization with more than 1,100 members from 45 different countries around the world. It is particularly exciting to see the strong impact that core technical topics of ISSMO, such as topology optimization, surrogate modeling, optimization under uncertainty, and multidisciplinary and multiphysics optimization, have had on the technological advancements in multiple engineering disciplines, such as mechanical, civil, aerospace, and materials, to name a few. Together with recent advances in advanced manufacturing, computational mechanics, nanotechnology, and artificial intelligence, the momentum

behind SMO research has accelerated the discovery of new applications and opportunities in these fields.

As the SMO technical field advances, the primary mission of ISSMO remains bringing together international researchers and practitioners in this field. Last year, ISSMO's flagship event, the biennial WCSMO (World Congress on Structural and Multidisciplinary Optimization), held in Beijing, China ([WCSMO-13](#)), successfully brought together 623 registrants from 33 countries. Selected WCSMO-13 papers were collected and published as a [special issue](#) in ISSMO's journal, Structural and Multidisciplinary Optimization (Springer Verlag) (Vol. 61, Issue 6, 2020). The next conference, [WCSMO-14](#), will be held as an all-virtual conference from June 13-18, 2021, chaired by Professor Kurt Maute from the University of Colorado, Boulder. We will identify innovative and effective means to bring the community together for this important technical exchange. In addition to WCSMO, ISSMO has [endorsed a wide range of international scientific meetings](#) this year.

Another important mission of ISSMO is to recognize the outstanding research, education, and engineering accomplishments of its members through an awards program. In addition to the [ISSMO/Springer Prize](#) associated with WCSMO papers, the "[Haftka Young Investigator Award](#)" was named after Professor Raphael T. Haftka to recognize young researchers early in their careers for groundbreaking achievements and promising developments in the field. To nominate an outstanding junior colleague please contact the awards committee before [January 31, 2021](#).

While recognizing and attracting young researchers to this field, it has also been our goal to broaden the participation of women and minorities to this field. In both WCSMO-12 and WCSMO-13, we organized well-received women researchers' networking events, which will return to future WCSMO conferences. To further broaden participation, WCSMO has also offered reduced fees for students and retired ISSMO members. 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 Professor Raphael T. Haftka, for serving as the Editor-in-Chief of [Structural and Multidisciplinary Optimization](#) since 2015. Under his leadership, together with the dedicated service of 40+ review editors, the impact factor of the journal has been increasing steadily in recent years (3.925 in 2018 and 3.377 in 2019).

Just as we are preparing this newsletter, we were deeply saddened by the news that Professor Rafi Haftka left us on August 16, 2020. In addition to serving the SMO journal, Professor Haftka served as the President of ISSMO from 1995 to 1999 and made fundamental contributions to the creation and growth of this community. Many of the colleagues in ISSMO had personal interactions with him and admire him as a leading scholar, mentor, forerunner, role model, trusted colleague and friend, and a loving husband. We include an [obituary](#) and mourn the loss of our society by carrying on Professor Haftka's legacy. Here, I would like to thank Dr. Ming Zhou and Professor Helder C. Rodrigues for agreeing to serve as the co Editor-in-Chief for the SMO journal.

We expect the SMO journal will continue to grow under their leadership.

The ISSMO community is resilient and creative. During the COVID-19 pandemic, our technical exchange continues. Here, I would like to thank the colleagues from Technical University of Denmark (DTU) and TU Delft who have organized the monthly [TOP \(topology optimization\) Webinar](#) via Zoom since May 2020. Led by facilitators from around the world, the webinar has featured talks from recently published papers in the area of topology optimization and attracted interest from a wide range of scholars, both inside and outside the ISSMO community.

Finally, I would like to thank the current members of the [ISSMO Executive Committee \(EC\)](#) for their invaluable leadership. I have enjoyed working with everyone on the EC and greatly appreciate their wisdom, dedicated service, and innovative thinking -- all of which have significantly improved ISSMO's service to its members while advancing the technical field of SMO. Last, but not the least, I would like to thank several young volunteers, Drs. Shelly Zhang and Hesaneh Kazemi, for their service as the editors of this inaugural newsletter of our society.

Together, we intend to continue to foster technical exchange, stimulate new research directions, and make ISSMO as strong as possible. Toward that end, we encourage all of our members to attend our conferences, contribute new ideas, and help organize new initiatives. For more information on membership, events, and volunteer opportunities please visit our web site <https://www.issmo.net/>.

Obituary: Dr. Raphael (Rafi) T. Haftka 1944 – 2020



We are deeply saddened by the sudden passing of Dr. Rafi Haftka on August 16, 2020. Beyond his tremendous impact as a researcher during his remarkable 50-year career, he is foremost remembered by many as a dear friend. The most consistent impressions people have been sharing about Rafi are his kindness, generosity, humility, and unique sense of humor, as well as his impact as a mentor and role model.

Rafi was born February 22, 1944, in Tel-Aviv, Israel. His professional journey started as an aerodynamicist at Israeli Aircraft Industries from 1965 to 1968. After postdoctoral research fellowships at NASA and other US organizations, he was a Senior Lecturer at Technion-Israel Institute of Technology from 1973 to 1975.

His career moved to the United States when he became an Assistant Professor at Illinois Institute of Technology in 1975. He subsequently held positions as Professor/Christopher Kraft Professor at Virginia Tech from 1981 to 1994, and Professor/Distinguished Professor at University of Florida from 1995 until retirement in 2019.

Rafi has had a tremendous impact on ISSMO. He was among the founding EC members of the society in 1991. He also served as the second ISSMO President between 1995 and 1999, and Editor-in-Chief of the Springer SMO journal since 2015, both following George Rozvany, who was the Founder President and founding Editor-in-Chief, respectively. He has received many distinctions throughout his career, including the Virginia Tech Alumni Award for Excellence in Research, AIAA Fellow, and the AIAA Multidisciplinary Design Optimization Award. His impact on our research field is immeasurable and highlighted by early pioneering contributions to approximation concepts (including the far-reaching convex/conservative approximation), sensitivity analysis, surrogate modeling, and non-deterministic methods, as well as his leadership in creating/promoting MDO. His work includes 330 journal papers, 530 conference proceedings papers,

12 book chapters, and 2 textbooks, in total having over 34,000 Google citations at the time of this writing.

Another trademark of Rafi's career is his amazing outreach in collaborative research: he supervised 65 Ph.D. students, cooperated with peers worldwide broadly, and was especially fond of nurturing aspiring young researchers. He co-authored papers with over 180 peers excluding his students.

We also want to extend our deepest condolences to Rafi's family, foremost his beloved wife, Rose Haftka. Rose is a dear friend to many of us, with a deep connection to ISSMO having accompanied Rafi to all WCSMO conferences. Many might not know that Rose has her personal imprint on ISSMO as the artist behind the ISSMO logo. As we mourn the loss of a dear friend and a giant in our field, let us remind ourselves to seize the moment to reflect upon and celebrate the exemplary life Rafi had lived. In this spirit, the ISSMO Executive Committee has unanimously voted to name a planned new award the 'Haftka Young Investigator Award' to be inaugurated at WCSMO-14 to be held in Boulder, Colorado, in 2021.

Prepared by Ming Zhou

WCSMO 13 Beijing, China, May 20-24, 2019

The 13th World Congress of Structural and Multidisciplinary Optimization (WCSMO-13) has been successfully held at the National Conference Centre in Beijing, China, on May 20-24, 2019. Under the guidance from the International Society for Structural and Multidisciplinary Optimization (ISSMO), WCSMO-13 was co-organized by Dalian University of Technology (DUT) and Beihang University, with Professor Xu Guo from DUT and Professor Hai Huang from Beihang being the co-chairs. The aim of the conference is to provide a platform for academic researchers and industrial practitioners to exchange their latest developments in the field of structural and multidisciplinary optimization. On the morning of May 20, the opening ceremony of the Conference was held in the National Convention Center. The executive Chairman of ISSMO then, Professor Gengdong Cheng, delivered an opening speech. Then Professor Haiyan Hu from Beijing Institute of Technology, a member of Chinese Academy of Science, gave a presentation on "Deployable Space Structures: Challenges to Computational Dynamics". WCSMO-13 attracted more than 600 academic abstract submissions, and nearly 700 participants from more than 40 countries including China, Denmark, Sweden, the United States, Germany, Japan and South Korea attended the conference.

The content of the scientific program covered many cutting-edge research areas such as shape and topology optimization, uncertainty optimization, topics on optimization methods,



structural optimization engineering applications and other structural optimization fields.

The oral presentations were classified in 25 minisymposia in eight parallel sessions. On the afternoon of 23 May, Professor Gengdong Cheng from DUT, then ISSMO President, Professor James Guest from Johns Hopkins University, then ISSMO Secretary-General, and Professor Eric Lund from Aalborg University, the ISSMO treasurer, delivered a report over ISSMO activities in the past two years. This was followed by a panel discussion with Professor Niels Aage from Technical University of Denmark (DTU), Professor Wei Chen from Northwestern University, Professor Hai Huang from Beihang University, and Professor Yoshihiro Kanno from University of Tokyo.

The following research topics were among the topics that received the most number of submissions:



topology optimization motivated by additive manufacturing (nearly 70 submissions), the explicit topology optimization methods (nearly 30), topology optimization problems related to stress control (nearly 30), and machine-learning-based methods (nearly 20).

The year 2019 also held the election of the ISSMO Executive Committee (EC). Professor Wei Chen from Northwestern University became the new ISSMO president, and Professor Qing Li from University of Sydney and Dr. Ming Zhou from Altair became vice presidents. Professor Alicia Kim from UCSD and Professor Eric Lund from Aalborg became the Secretary-General and the treasurer, respectively. Other EC members include Professor Gengdong Cheng from DUT, Professor James Guest from Johns Hopkins, Pierre Duysinx from Liege University, Professor Xu Guo from DUT, and Professor Ole Sigmund from DTU.

Prepared by Xu Guo

Women Researchers' Event (WCSMO-13)



ISSMO/Springer Prize 2019

The Executive Committee is delighted to announce the two receiving the ISSMO/Springer Prize for outstanding papers by young researchers (under 35) presented at WCSMO-13.

They are:

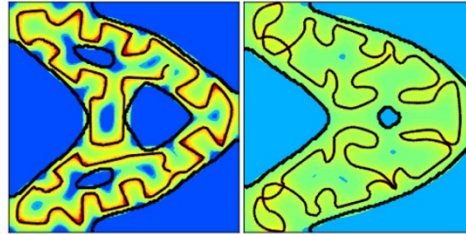
Mathilde Boissier, “Laser path optimization for Additive Manufacturing” with co-authors Gregoire Allaire and Christophe Tournier

Weiming Wang, “Space-Time Topology Optimization for Additive Manufacturing: Concurrent Optimization of Structural Layout and Fabrication Sequences” with co-authors Dirk Munro, Charlie Wang, Fred van Keulen and Jun Wu.

ISSMO congratulates Mathilde Boissier and Weiming Wang for their outstanding work. The award ceremony will be held at WCSMO-14 in 2021.

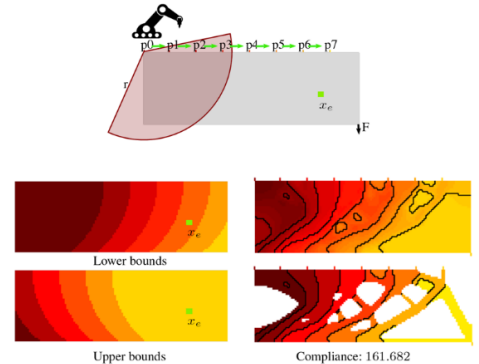
The EC would also like to take this opportunity to congratulate all young researchers whose excellent work was nominated for this prestigious award, and additionally thank their nominators for highlighting their work.

*Mathilde Boissier,
“Laser path optimization for Additive Manufacturing”*



Mathilde is a Ph.D. student at Ecole Polytechnique and ENS Paris Saclay (France) under the supervision of Grégoire ALLAIRE and Christophe TOURNIER. This work, funded by the SOFIA project, aims at optimizing the scanning paths for additive manufacturing powder bed fusion processes. In a simplified physical context, shape optimization and optimal control techniques are adapted to allow the generation of a path fully adapted to the object to build. The results generated are hoped to help getting intuition on design constraints easing an effective path generation.

*Weiming Wang,
“Space-Time Topology Optimization for Additive Manufacturing: Concurrent Optimization of Structural Layout and Fabrication Sequences”*



Weiming is a postdoc supported by the LEaDing fellowship programme at the Delft University of Technology, the Netherlands. The research is about the design of optimal structures and the planning of (additive manufacturing) fabrication sequences. They have been considered typically as two separate tasks that are performed consecutively. In the light of recent advances in robot-assisted (wire-arc) additive manufacturing which enable addition of material along curved surfaces, Weiming presented a novel topology optimization formulation which concurrently optimizes the structure and the fabrication sequence.

Announcing the Haftka Young Investigator Award

The Executive Committee is pleased to announce creation of a new award aimed at recognizing ISSMO researchers early in their careers for groundbreaking achievements and promising developments in the field of structural and multidisciplinary optimization. This new award has been named the Haftka Young Investigator Award in honor of the foundational research contributions of Professor Raphael T. Haftka and recognizes his passion for mentoring young researchers. Additional details regarding eligibility and the nomination procedure can be found in the Announcements section of the ISSMO website. This new award will be inaugurated during WCSMO-14 in 2021, with the nomination period closing on January 31, 2021.

WCSMO 14 Announcement



WCSMO 14 ANNOUNCEMENT

On behalf of the International Society for Structural and Multidisciplinary Optimization (ISSMO), it is our pleasure to invite you to attend the 14th World Congress of Structural and Multidisciplinary Optimization (WCSMO 14) from June 13th-18th, 2021.

The main objectives of the conference are to stimulate and promote research on all aspects of structural and multidisciplinary optimization and related topics. This includes optimization theory, algorithm and method development, and science and engineering applications involving structures, fluids, and other physical phenomena, as well as their interactions. Contributions to practical applications of optimization methods and software development in all branches of technology are encouraged. Please visit the WCSMO-14 conference website <http://wcsmo14.org> for more information about the topics of interest as well as the conference schedule.

Originally, we planned to hold the conference on the beautiful campus of the University of Colorado Boulder in the US. Unfortunately, the Coronavirus (COVID-19) continues to be a global issue and travel restrictions and general health concerns will likely impede international participation in WCSMO-14. Therefore, in consensus with the ISSMO leadership, we decided to host WCSMO-14 in an all-online, virtual format.

This decision was made just a few days ago and we are currently developing an innovative and inclusive virtual conference format that reflects the traditions and values of previous WCSMO conferences.

We are looking forward to your participation. Should you have any questions, please, feel free to contact us at wcsmo14@colorado.edu.

The local organizing committee:

Kurt Maute^a(chair), Alireza Doostan^a, John Evans^a, James Guest^b, Julian Norato^c.

^a University of Colorado, ^b Johns Hopkins University, ^c University of Connecticut



Figure: Rocky Mountain National Park, Estes

Upcoming Female Researchers Event

The next Women Researchers Networking Event will be held during the WCSMO 14, June 13th-18th, 2021. The tentative events include a mentoring session featuring several female panelists and a roundtable discussion.

SMO Journal Summary

1. Brief history: Founded by George Rozvany in 1989, who also founded ISSMO in 1991. Name changed from Structural Optimization, to Structural and Multidisciplinary Optimization in 2000. Rozvany started and ended his career in Hungary, but his main contributions were made in Australia and Germany in structural optimization and topology optimization. He was Editor in Chief, until his death in 2015, with Rafi Haftka acting as Co-editor. In 2015, Rafi became Editor in Chief, with Helder Rodrigues, Vassili Toropov, and Ming Zhou as Co-Editors. Papers are not assigned to the 40 or so active Review Editors but they volunteer to handle papers.

2. Scope of the journal from its web page: The journal's scope ranges from mathematical foundations of the field to algorithm and software development, and from benchmark examples to case studies of practical applications in structural, aerospace, mechanical, civil, chemical, naval and bio-engineering. Fields such as computer-aided design and manufacturing, uncertainty quantification, artificial intelligence, system identification and modeling, inverse processes, computer simulation, bio-mechanics, bio-medical applications, nano-technology, MEMS, optics, chemical processes, computational biology, meta-modeling, DOE and active control of structures are covered when the topic is closely related to the optimization of structures or fluids.

3. Journal started as mostly European and American, now more Asian. See Figure 1. Current challenge is to stay international rather than split into factions. Therefore, authors are encouraged to propose reviewers from other countries. Ideally, the editors and reviewers are not from the same country and are also from countries different from those of the authors.

Figure 1 Author Country of Origin and Manuscripts Submitted and Accepted

Country	# of Manuscripts Submitted				# of Manuscripts Accepted*					
	2016	2017	2018	2019	June 19, 2020	2016	2017	2018	2019	June 19, 2020
CHINA	191	218	350	479	219	36	76	101	115	61
UNITED STATES	49	58	71	77	43	23	29	43	34	22
KOREA, REPUBLIC OF	23	25	39	43	15	13	7	23	18	5
UNITED KINGDOM	10	15	23	16	12	5	5	10	12	5
DENMARK	6	13	14	11	6	3	10	12	11	5
JAPAN	9	15	20	19	12	5	8	13	9	5
GERMANY	15	14	19	26	12	4	9	4	8	5
BRAZIL	14	22	17	27	11	5	6	13	8	3
IRAN, ISLAMIC REPUBLIC OF	59	67	62	84	52	5	9	9	7	2
CANADA	7	13	6	27	17	3	5	3	6	8
SWITZERLAND	3	4	8	5	2	2	1	1	6	
FRANCE	15	13	12	17	7	6	7	7	5	7
SWEDEN	8	7	5	8	3	4	4	4	5	4
SPAIN	11	17	8	14	7	1	8	4	4	2
AUSTRALIA	8	8	20	13	8	1	5	4	4	
TURKEY	11	17	16	27	25	4	3	1	4	1
BELGIUM	6	4	10	10	6	3	3	5	4	1
NETHERLANDS	1	6	5	6	5	1	4	3	3	
ITALY	12	7	5	9	8	7	2	3	3	2

4. Most popular papers: Two measures of the popularity of a paper is the number of downloads (see Fig. 2) and the number of citations (see Fig. 3)

Analysis of the figures shows that the journal is focused on topology optimization and additive manufacturing, with reliability analysis also being a strong focus. Many of the applications mentioned in the scope, such as bio-medical engineering and artificial intelligence may be left out. The editors are looking into ways of reestablishing the full scope. The publisher is looking into accelerating the production process to make the journal more attractive. Also review papers draw high citations, and so the journal has a fast review and production track for such papers.

Figure 2 Top 10 Full-Text Article Request 2019 (published years 2017-2019)

Title	Author	Article Type	Volume	Issue	Year*	Article Requests 2019
OpenMDAO: an open-source framework for multidisciplinary design, analysis, and optimization	Justin S. Gray et al.	Original Paper	59	4	2019	4,952
Current and future trends in topology optimization for additive manufacturing	Jikai Liu et al.	Review Paper	57	6	2018	3,402
A Python script for adaptive layout optimization of trusses	Linwei He et al.	Continuing Education	60	2	2019	2,466
An 88-line MATLAB code for the parameterized level set method based topology optimization using radial basis functions	Peng Wei et al.	Continuing Education	58	2	2018	1,810
An additive manufacturing filter for topology optimization of print-ready designs	Matthijs Langelaar	Original Paper	55	3	2017	1,789
Replication of results	Raphael T. Haftka et al.	Editorial Notes	60	2	2019	1,717
Synthesis of minimum energy adaptive structures	Gennaro Senatore et al.	Original Paper	60	3	2019	1,531
On design optimization for structural crashworthiness and its state of the art	Jianguang Fang et al.	Original Paper	55	3	2017	1,528
A new overhang constraint for topology optimization of self-supporting structures in additive manufacturing	Alain Garaigordobil et al.	Original Paper	58	5	2018	1,453
Multiscale structural optimization towards three-dimensional printable structures	Chikwesiri Imedigwu et al.	Original Paper	60	2	2019	1,441

5. Replication of Results: Our journal is mostly about developing new algorithms or assessing the performance of existing algorithms for applications of interest. The impact of such algorithms is enhanced if readers can reproduce the results reported in the paper. This is greatly helped by the readiness of the authors to share data and computer codes with readers. This is not always possible, but the journal now demands a clear statement about the readiness of the authors to share computer codes and data.

Figure 3 Top Ranking Highest Cited 2017-2018 Articles for IF (Impact Factor) Year 2019

Title	Author	Publication Type	Publication Date	DOI	Volume	Issue	Total Citations*	Citations for IF 2018
Current and future trends in topology optimization for additive manufacturing	Liu, Jikai; Gaynor, Andrew T.; Chen, Shikui; Kang, Zhan; Sun, Krishnan; Takekawa, Akhiro; Li, Lei; Kato, Junji; Tang, Jinyuan; Wang, Charlie C. L.; Cheng, Lin; Liang, Xian; To, Albert C.	Review Article	JUN 2018	10.1007/s00158-018-1994-3	57	6	89	46
An additive manufacturing filter for topology optimization of print-ready designs	Langelaar, Matthijs	Research Paper Open Access	MAR 2017	10.1007/s00158-016-1522-2	55	3	97	38
On design optimization for structural crashworthiness and its state of the art	Fang, Jianguang; Sun, Guangyong; Qiu, Na; Kim, Nam H.; Li, Qing	Review Article	MAR 2017	10.1007/s00158-016-1579-y	55	3	137	36
Multi-material topology optimization using ordered SIMP interpolation	Zuo, Wenjie; Saitou, Kazuhiro	Research Paper	FEB 2017	10.1007/s00158-016-1513-3	55	2	88	34
Concurrent topology optimization of multiscale structures with multiple porous materials under random field loading uncertainty	Deng, Jiadong; Chen, Wei	Research Paper	JUL 2017	10.1007/s00158-017-1689-1	56	1	38	24
Multi-objective and multi-case reliability-based design optimization for tailor rolled blank (TRB) structures	Sun, Guangyong; Zhang, Huijie; Fang, Jianguang; Li, Guangyao; Li, Qing	Industrial Application	MAY 2017	10.1007/s00158-016-1592-1	55	5	57	23
Time-variant reliability assessment for multiple failure modes and temporal parameters	Yu, Shui; Wang, Zhonglai; Meng, Debiao	Research Paper	OCT 2018	10.1007/s00158-018-1993-4	58	4	30	23
Temporal and spatial multi-parameter dynamic reliability and global reliability sensitivity analysis based on the extreme value moments	Shi, Yan; Lu, Zhenzhou; Cheng, Kai; Zhou, Yicheng	Research Paper	JUL 2017	10.1007/s00158-017-1651-2	56	1	40	21
Efficient aerodynamic shape optimization of transonic wings using a parallel infilling strategy and surrogate models	Liu, J.; Song, W.-P.; Han, Z.-H.; Zhang, Y.	Research Paper	MAR 2017	10.1007/s00158-016-1546-7	55	3	37	20
Configurational optimization of multi-cell topologies for multiple oblique loads	Sun, Guangyong; Liu, Tangyong; Fang, Jianguang; Steven, Grant P.; Li, Qing	Research Paper	FEB 2018	10.1007/s00158-017-1839-5	57	2	42	19
A survey of adaptive sampling for global metamodeling in support of simulation-based complex engineering design	Liu, Haitao; Ong, Yew-Soon; Cai, Jianfei	Review Article	JAN 2018	10.1007/s00158-017-1739-8	57	1	39	19
Time-dependent concurrent reliability-based design optimization integrating experiment-based model validation	Wang, Zhonglai; Cheng, Xiaowen; Liu, Jing	Research Paper	APR 2018	10.1007/s00158-017-1823-0	57	4	27	18

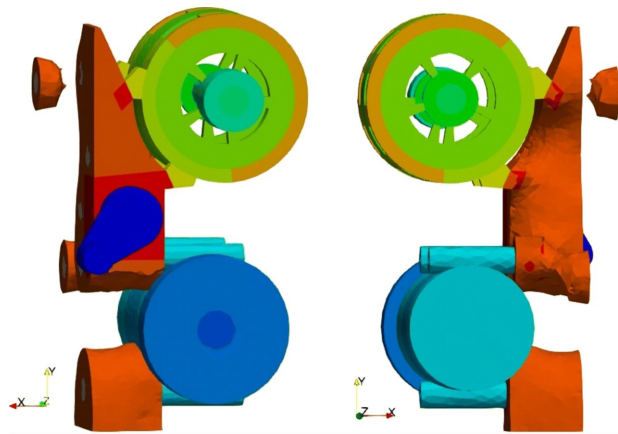


Figure 1: Coupled support locations and structure optimization [2]

The purpose of this special issue of the Journal of Structural and Multidisciplinary Optimization (Springer Verlag) (Vol. 61, Issue 6, 2020) is to publish selected works presented at the 13th World Congress on Structural and Multidisciplinary Optimization (WCSMO13) in May 20–24, 2019, in Beijing, China. WCSMO conferences, held biennially in different continents, aim to provide a platform for researchers and practitioners from all over the world to present and discuss the latest findings and developments in all areas of structural and multidisciplinary optimization. WCSMO13 was organized jointly by the Chinese Society of Theoretical and Applied Mechanics, Dalian University of Technology, and Beihang University under the auspices of the Asian Society of Structural and Multidisciplinary Optimization (ASSMO) and the International Society for Structural and Multidisciplinary Optimization (ISSMO).

Based on nominations by WCSMO participants and own screenings, the guest editors selected the special issue papers through a selection process based on quality of the work and diversity of the topics concerning the analysis of solids, fluids, manufacturing and other fields. Subsequently, all manuscripts went through a regular review process. The issue includes a wide variety of contributions, ranging from theoretical developments to industrial applications, with topics related to topology optimization, surrogate based optimization, design optimization under uncertainty and others.

The complete list of contributions in this issue are listed in the Editorial Note [1]. Examples of contributions include the coupled optimization of the structure and the location of rigid supports of an engine accessories bracket (see Fig. 1), and the reliability-based multi-scale design optimization of composite frames considering structural compliance and manufacturing constraints (see Fig. 2).

Editors: Erdem Acar, Jianbin Du, Yoon Young Kim, Mehmet Polat Saka, Ole Sigmund, Emilio Carlos N. Silva

Communicated by Helder C. Rodrigues

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1. E Acar, J Du, YY Kim, MP Saka, O Sigmund, and ECN Silva. Special issue for the 13th world congress on structural and multidisciplinary optimization—editorial note, *Structural and Multidisciplinary Optimization*, 61(6), 2225–2226 (2020).
2. L Rakotondrainibe, G Allaire, and P Orval. Topology optimization of connections in mechanical systems. *Structural and Multidisciplinary Optimization*, 61(6), 2253–2269 (2020).
3. Z Duan, T Jung, J Yan, and I Lee. Reliability-based multi-scale design optimization of composite frames considering structural compliance and manufacturing constraints. *Structural and Multidisciplinary Optimization*, 61(6), 2401–2421 (2020).

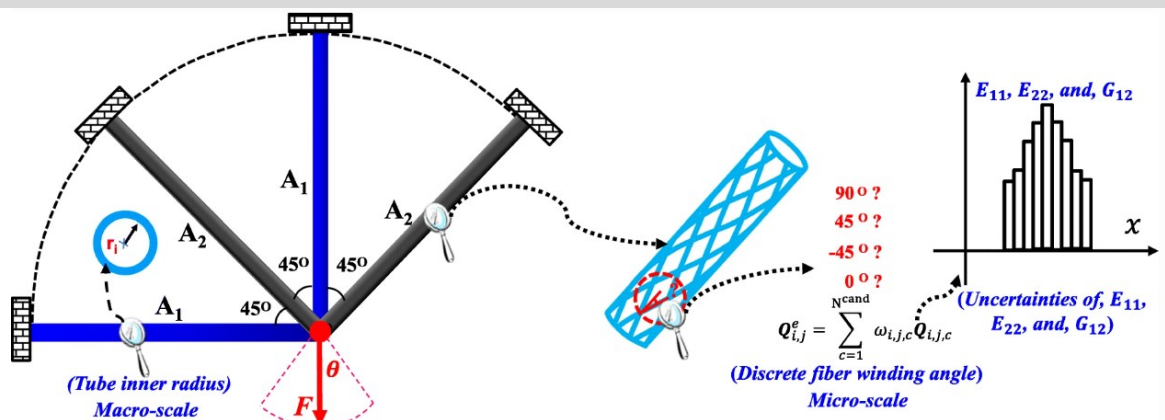
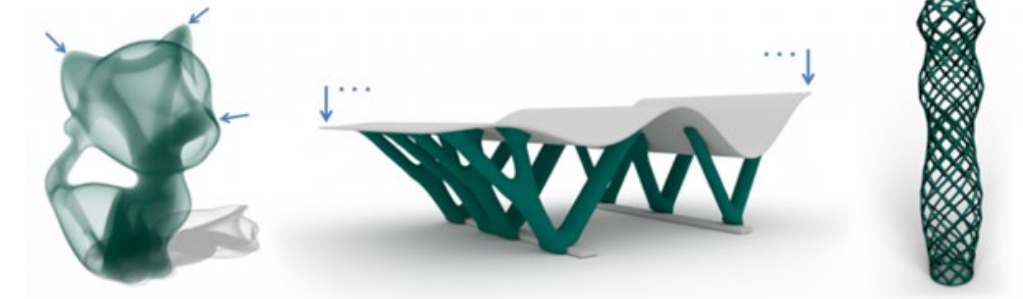


Figure 2: Reliability-based multi-scale design optimization of composite frames [3]

We are in a challenging time for knowledge exchange, and this situation may last for an extended period. Usual academic exchange at conferences and workshops are cancelled or postponed but research goes on. A way for the community to stay connected and ensure research exchange is Webinars.

The Topology Optimization Webinar, or TOP Webinar, is a newly initiated series of webinars, serving the broad structural and multidisciplinary optimization community, with a focus on topology optimization. Our 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 initiated by colleagues at TU Delft and DTU Denmark. It is endorsed by the International Society for Structural and Multidisciplinary Optimization (ISSMO).



Kicked off on June 2, 2020, the TOP Webinar series is receiving a pleasantly overwhelming reaction from our community and beyond. The first three sessions were hosted by Fred van Keulen (TU Delft), Ole Sigmund and Niels Aage (DTU Denmark), and Gengdong Cheng and Xu Guo (Dalian University of Technology). The forthcoming session will be hosted by James Guest (JHU) on August 27, 2020. This reflects the geographic diversity, in line with the ISSMO Constitution. Similar to the distribution of hosts, we have speakers reflecting the distribution of ISSMO researchers over the world.

We take this opportunity to thank our hosts, speakers and participants around the world to join this event and share your knowledge.

The webinar takes place online, on the basis of roughly every four weeks, for a duration of 1.5 hours. Each webinar features a keynote and 4 invited presentations of recently published/accepted articles in SMO (Structural and Multidisciplinary Optimization) or other relevant journals.

Organizers:

Jun Wu, Matthijs Langelaar, Fred van Keulen, and Niels Aage, Ole Sigmund

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/1FAIpQLSf8ahNvQ1o6lVqr3leRKN-78l5uTYFa-REmnl-JS6SPy46ZxA/viewform?usp=sf_link or send a message to topwebinar.org@gmail.com



Upcoming ISSMO Endorsed Events

AIAA AVIATION Forum: 7-11 June 2021, Marriott Wardman Park, Washington, D.C..



25th International Congress of Theoretical and Applied Mechanics: postponed to 22-27 August 2021, MiCo Congress Centre, Milano.



14th WCCM ECCOMAS Congress 2020: alternative options are currently being explored by the organizers.



ASMO-UK12 / ASMO-Europe 1 / ISSMO Conference on Engineering Design Optimization: 23-24 July 2021, University of Leeds, Leeds.



ACSMO 2020 (Asian Congress of Structural and Multidisciplinary Optimization 2020): postpones to 22-26 November 2020 as an online conference.



AIAA SciTech Forum 2021: 11-15 January 2021, Music City Center, Nashville, Tennessee.



Call For Volunteers

We are starting a few new initiatives to improve our communication and support to our ISSMO members. Thus, we are looking for young and enthusiastic volunteers to serve our community. If interested, please send Alicia Kim a one page CV together with one paragraph description on what you would like to achieve by serving the ISSMO community.

Current Society Status

WCSMO-13 Statistics - Participation

- 619 papers/abstracts were submitted from 30 countries
- 596 papers accepted (518 lectures and 78 posters)
- 553 papers (475 lectures and 78 posters) are presented
- 623 registrations are completed from 33 countries

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

Table 1 WCSMO-13 Statistics – Presentations (553)

China	245	Spain	5
USA	46	Canada	4
Korea	40	Poland	4
Japan	39	Portugal	3
Germany	37	Chile	2
Denmark	21	Israel	2
Australia	14	Russia	2
UK	13	Finland	1
France	12	Greece	1
Belgium	12	Singapore	1
Netherlands	11	South Africa	1
Sweden	10	Ghana	1
Brazil	9	Czech	1
India	8	Vietnam	1
Hungary	7	Iran	1

Table 2 Budget June 2017 – May 2019

	Euro	DKK
Balance – June 2017 (reported at WCSMO-12, Braunschweig):	43,510	323,714
ISSMO membership fees from WCSMO-12, Braunschweig	18,214	135,515
Interest income	29	215
ISSMO Web 2018 (website hosting & 2 year support);	-1,734	-12,899
IPC meeting Beijing – travel expenses (economy class)	-6,879	-51,177
ISSMO/Springer Prize (USD 1,000)	-848	-6,312
Bank account charge and fees	-282	-2100
Balance – May 2019 (prior to WCSMO-13, Beijing):	52,010	386,957

The EC conducted a major membership study in 2019 to confirm active members and interest, and remove duplicate and outdated accounts.

- Voting Members were emailed with an option to opt-out
- 3 Memberships deleted at user request (All respondents were sent confirmation email by SG with opportunity to remain member)
- Non-voting Members and Associate Members were emailed with an option to maintain membership
- 245 responded to maintain membership
- 383 New Voting Members registering with WCSMO-13
- No registrants opted-out of membership during registration

Following this comprehensive study, the ISSMO Membership database now stands at:

- 1128 Members with Voting Rights (WCSMO-11,-12,-13)
- 226 Members without Voting Rights
- 19 Associate Members

Table 3 ISSMO Membership Distribution* – With Voting Rights

*Does not include on-site registrations

337	China	9	Canada	2	Chile
122	Korea	9	Poland	2	Czech Republic
103	Germany	7	Taiwan	1	Barbados
96	Japan	7	Israel	1	Estonia
86	USA	6	Spain	1	Georgia
53	Australia	5	Hungary	1	Greece
42	Denmark	5	Italy	1	Hong Kong
37	France	5	South Africa	1	Indonesia
31	United Kingdom	4	Singapore	1	New Zealand
24	Netherlands	3	Columbia	1	Norway
18	Belgium	3	Finland	1	Pakistan
15	Brazil	3	Iran	1	Romania
15	Sweden	3	Russia	1	Turkey
11	Portugal	2	Afghanistan	1	Ukraine
10	India	2	Austria	1	Vietnam



	Members	
AMERICAS	116	10.6%
ASIA-AUSTRALIA	647	59.4%
EUROPE-AFRICA	327	30.0%
Total Members*	1090	100%



Voting Member Distribution



Executive Committee

President



Professor Wei Chen
Wilson-Cook Professor
in Engineering Design,
Department of
Mechanical Engineering
Northwestern University

Secretary General



Professor H. Alicia Kim
Jacobs Scholar Chair Professor
Structural Engineering
Department
University of California, San
Diego

Vice President



Dr. Ming Zhou
Senior Vice President
Structural Analysis
and Optimization,
Altair Engineering

Vice President



Professor Qing Li
School of Aerospace
Mechanical and Mechatronics
Engineering
The University of Sydney

Treasurer



Professor Erik Lund
Department of Materials and
Production
Aalborg University

EC Member



Professor Pierre Duysinx
LTAS – Automotive
Engineering
University of Liège

EC Member



Professor Xu Guo
Professor Dean
Department of Engineering
Mechanics
Dalian University of Technology.

EC Member



Professor Ole Sigmund
Department of Mechanical
Engineering, Section for Solid
Mechanics
Technical University of
Denmark

Past President



Professor Gengdong Cheng
State Key Laboratory for
Structural Analysis of Industrial
Equipment
Dalian University of Technology

Past Secretary General



Professor James K. Guest
Department of Civil and
Systems Engineering
Johns Hopkins University

Founder-President



Professor George Rozvany

Becoming A Member

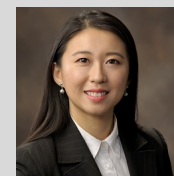
For membership listing and approval, please visit <https://www.issmo.net/membership/join-issmo/> and submit your information. If you have any difficulty, please email a resume with a list of publications to Secretary General. Associate membership is granted upon recommendation of one of the members of 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.

Early Career Special Committee



**Dr. Hesaneh
Kazemi**

Postdoctoral Scholar,
University of California
at San Diego, USA



**Professor X.
Shelly Zheng**

Assistant Professor,
University of Illinois at
Urbana-Champaign,
USA



**Professor
Zunyi Duan**

Associate Professor
Northwestern
Polytechnical
University, China