

EngOpt2018

6th International Conference on Engineering Optimization

Instituto Superior Técnico
Lisbon • Portugal

17-19 September, 2018

Programme

Edited by

H.C. Rodrigues, J. Herskovits, C.M. Mota Soares, J.M. Guedes,
A.L. Araújo, J.O. Folgado, F. Moleiro, J.F.A. Madeira

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Title

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IDMEC - Instituto de Engenharia Mecânica

Instituto Superior Técnico, Avenida Rovisco Pais 1, 1049-001 LISBOA

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Welcome Message

On behalf of **EngOpt** organizing committee we are pleased to welcome you to Lisbon for the **6th International Conference on Engineering Optimization** held at Instituto Superior Técnico of the Universidade de Lisboa.

The main goal of **EngOpt** conference series is to periodically bring together engineers, applied mathematicians and computer scientists working on research, development and practical application of optimization methods applied to all engineering disciplines or developing basic techniques in this field. Following the very successful conference in Foz do Iguassu, Brasil (EngOpt2016), the **6th International Conference on Engineering Optimization** (**EngOpt**2018) is now held in Lisbon. The purpose of this Conference is to provide opportunities for scientists and engineers to meet and to discuss current research, new concepts and ideas and establish opportunities for future collaborations in all aspects of Engineering Optimization.

We invite you to be an active participant in this Conference and to contribute to any topic, or mini-symposium, of your scientific interest. By promoting a relaxed atmosphere for discussion and exchange of ideas we expect that new paths for research are stimulated and promoted and that new collaborations can be fostered. We hope that the **6th International Conference on Engineering Optimization** will have an important impact on the research in all topics included in its programme.

We want to express our appreciation to all members of the committees involved in the preparation of this Conference, to all mini-symposia organizers who identified and promoted some of the most active topics of research in Engineering Optimization, to all the staff who are managing the different aspects of the Conference and to all the contributing authors and participants who will create the real Conference. We hope that all of you feel rewarded for your participation and contribution.

Sincerely Yours,

Hélder Rodrigues, IST, IDMEC (EngOpt2018 Chairman)

José Herskovits, COPPE/UFRJ (EngOpt2018 Co-Chairman)

Cristóvão Mota Soares, IST, IDMEC (EngOpt2018 Co-Chairman)



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Conference Organization

Organizing Committee

- **Hélder Rodrigues**, IST, IDMEC (*Chairman*)
- **José Herskovits**, COPPE/UFRJ (*Co-Chairman*)
- **Cristóvão Mota Soares**, IST, IDMEC (*Co-Chairman*)
- **José Miranda Guedes**, IST, IDMEC
- **Aurélia Araújo**, IST, IDMEC
- **João Folgado**, IST, IDMEC
- **Filipa Moleiro**, IST, IDMEC
- **José Aguilar Madeira**, ISEL, IDMEC

Organizing Institutions

- *IST, Instituto Superior Técnico, Universidade de Lisboa*
- *IDMEC, Institute of Mechanical Engineering*

Endorsed by

APMTAC – Portuguese Association of Theoretical, Applied and Computational Mechanics

ISSMO – International Society for Structural and Multidisciplinary Optimization

Sponsored by

CGD – Caixa Geral de Depósitos

Scientific Committee

- **W. Achtziger**, Dortmund, Germany
- **G. Allaire**, Palaiseau, France
- **R. Ansola**, Bilbao, Spain
- **C.C. António**, Porto, Portugal
- **S. Azarm**, Maryland, USA
- **A.A. Bandeira**, Salvador, Brazil
- **C. Barbarosie**, Lisboa, Portugal
- **H.J.C. Barbosa**, Petrópolis, Brazil
- **A. Ben-Tal**, Haifa, Israel
- **P. Beremlijski**, Ostrava, Czech Republic
- **J. Blachut**, Liverpool, UK
- **I.F. Bustos**, Bilbao, Spain
- **A. Canelas**, Montevideo, Uruguay
- **C.F. Castro**, Porto, Portugal
- **G. Chapiro**, Juiz de Fora, Brazil
- **G. Cheng**, Dalian, China
- **K.K. Choi**, Iowa, USA
- **M. Colaço**, Rio de Janeiro, Brazil
- **A.L. Custódio**, Lisboa, Portugal
- **R. Das**, Auckland, New Zealand
- **A. Diaz**, East Lansing, USA
- **Z. Dimitrovová**, Lisboa, Portugal
- **J. Du**, Beijing, China
- **G. Dulikravich**, Miami, USA
- **P. Duysinx**, Liège, Belgium
- **G. Dzierzanowski**, Warsaw, Poland
- **P. Eberhard**, Stuttgart, Germany
- **A. Elkamel**, Waterloo, Canada
- **A. Faria**, S. José dos Campos, Brazil
- **J.R. Faria**, João Pessoa, Brazil
- **C.M. Fonseca**, Coimbra, Portugal
- **J. Guest**, Baltimore, USA
- **S. Gutierrez**, Santiago, Chile
- **N. Imam**, Oak Ridge, USA
- **M.L. Indrusiak**, S. Leopoldo, Brazil
- **K. Ivanov**, Almaty, Kazakhstan
- **B. Ivorra**, Madrid, Spain
- **H. Jensen**, Valparaíso, Chile
- **F. Jouve**, Paris, France
- **Y.Y. Kim**, Seoul, Korea
- **A. Klarbring**, Linköping, Sweden
- **J.P. Kuzhichalil**, Lisbon, Portugal
- **A.C.C. Lemonge**, Juiz de Fora, Brazil
- **A. Leski**, Warsaw, Poland
- **J. Logo**, Budapest, Hungary
- **E. Lund**, Aalborg, Denmark
- **N. Maïzi**, Paris, France
- **A.C. Marta**, Lisboa, Portugal
- **J.R.R.A. Martins**, Michigan, USA
- **N.F.M. Martins**, Lisboa, Portugal
- **C.A. Mota Soares**, Lisboa, Portugal
- **A. Nastase**, Aachen, Germany
- **H. Orlande**, Rio de Janeiro, Brazil
- **P. Papalambros**, Michigan, USA
- **N. Pedersen**, Lyngby, Denmark
- **P. Pedersen**, Lyngby, Denmark
- **J. Pinter**, Bethlehem, USA
- **M.P. Saka**, Isa Town, Bahrain
- **A. Secchi**, Rio de Janeiro, Brazil
- **E.C.N. Silva**, São Paulo, Brazil
- **T. Sokol**, Warsaw, Poland
- **A. Suleiman**, Lisboa, Portugal
- **M. Tanaka**, Santarém, Brazil
- **T. Tanyimboh**, Johannesburg, South Africa
- **A.-M. Toader**, Lisboa, Portugal
- **D. Tortorelli**, Urbana, USA
- **F. Van Keulen**, Delft, Netherlands
- **D. Vucinic**, Brussels, Belgium
- **G.W. Weber**, Poznan, Poland
- **G.H. Yoon**, Seoul, Korea

Conference Information

Conference Venue

The **6th International Conference on Engineering Optimization (EngOpt2018)** takes place in Instituto Superior Técnico (IST) Congress Center, situated at the Civil Engineering Building (Pavilhão de Civil) with the address:

Congress Center (*Civil Engineering Building*)

Instituto Superior Técnico
Av. Rovisco Pais 1
1049-001 Lisboa

Secretariat Open Hours

- Sunday, 16 September, 16:00 - 18:30
- Monday, 17 September, 08:40 - 18:00
- Tuesday, 18 September, 08:30 - 18:00
- Wednesday, 19 September, 08:30 - 16:00

Coffee-Breaks

The coffee-breaks will take place in the hall 2 (2nd Basement) of the conference center (see map of the conference center) and will be open to all participants. Kindly wear your Conference Badge.

Lunches

The Lunch tickets included in the package received during the registration will be accepted at the restaurants marked in the map below. The restaurants offer a few choices for lunch in self-service and has a daily vegetarian option. Note that the lunch tickets have different colors for the different days and are valid only for the day printed in the front.

1 - Congress Center Building

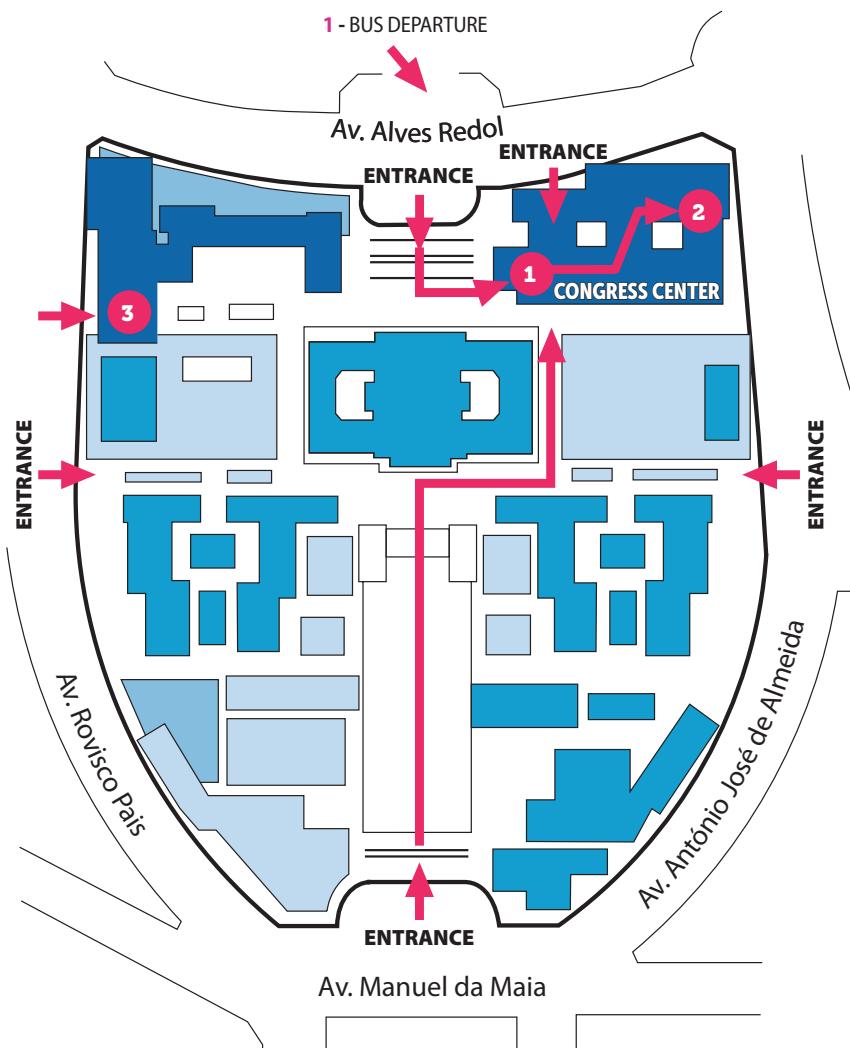
Floor -1 (1st Basement)

2 - Restaurant 1

Congress Center Building
Floor 0 (Ground Floor)

3 - Restaurant 2

Post Graduation Building
Floor -1 (1st Basement)



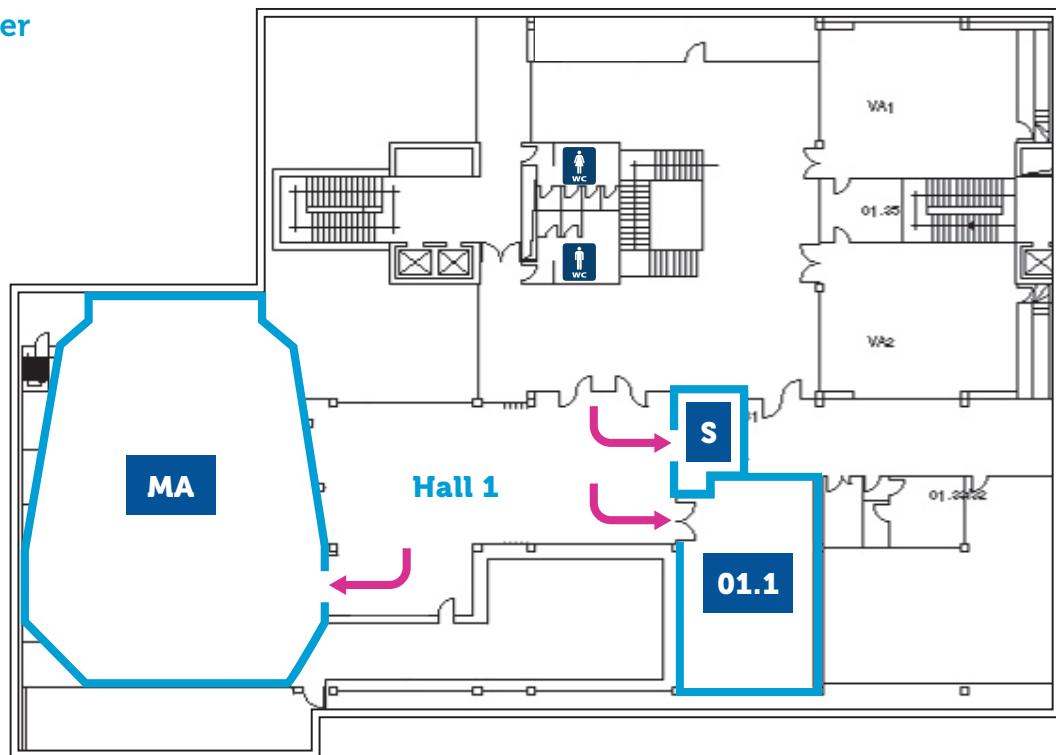
General Information

Congress Center Floor Plans

Congress Center

Floor -1

(1st Basement)



MA - Main Auditorium

S - Secretariat

01.1 - Lecture Room

02.1 - Lecture Room

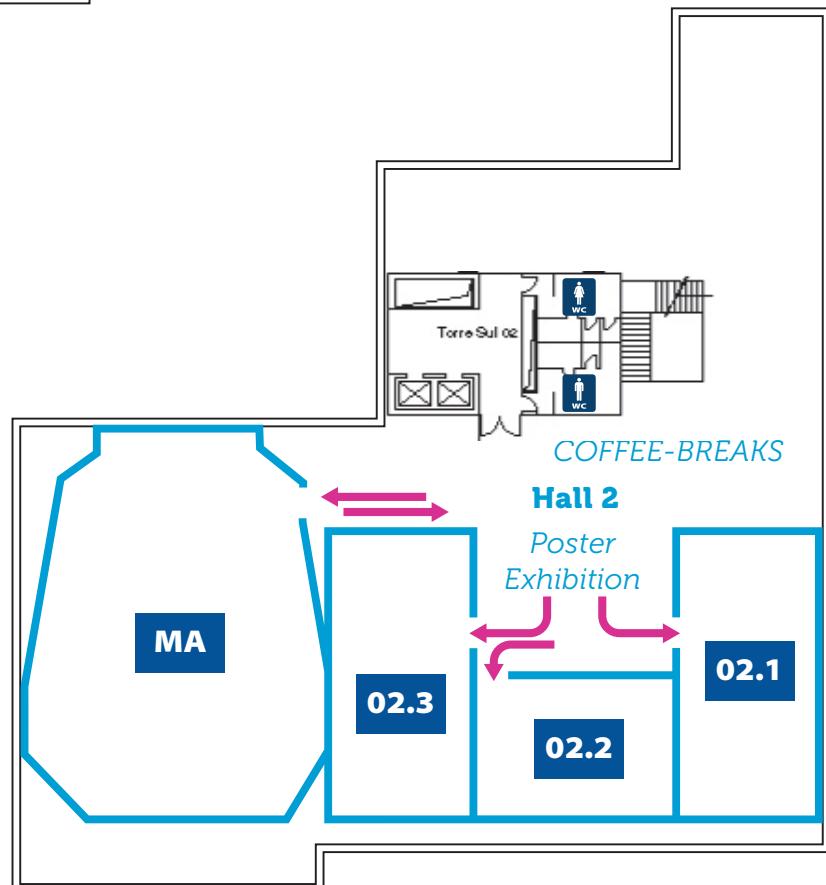
02.2 - Lecture Room

02.3 - Lounge Room

Congress Center

Floor -2

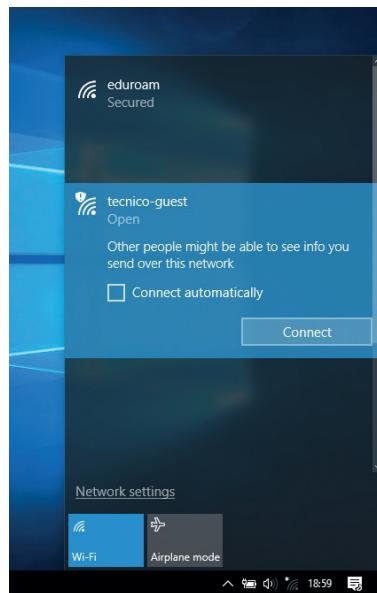
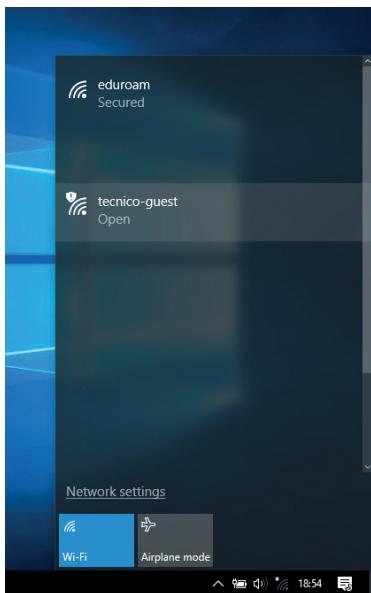
(2nd Basement)



General Information

Wireless Internet Access

For participants without access to Eduroam.



Step 1: Browse available wireless networks and select "tecnico-guest"

Step 2: Open your web browser and access the website "wifi.ist.utl.pt" (most of the computers will do it automatically)

Step 3: Click on the (blue) button "Ligar"

Step 4: Enter the following credentials: Username: **EngOpt2018**
Password: **JTXpb5**

Instructions for Presenters

- Each Oral presentation will take 20 minutes: 15 minutes for presentation + 5 minutes for discussion.
- The files required for the presentation (PowerPoint or PDF) should be uploaded, and tested to ensure compatibility, during the coffee or lunch breaks before the beginning of the session.
- The lecture rooms contain a Windows 10 PC, with Office 2016 and Acrobat PDF Reader, connected to a data projector. The use of personal computers is not recommended.
- Technical support will be provided on-site by the EngOpt 2018 staff to ensure a smooth delivery of all oral presentations.
- Posters will be displayed on vertical boards with maximum dimensions of 900mm (width) x 1200mm (height), which corresponds approximately to a standard A0-portrait.
- Posters should be set in the morning of Monday, September 17th and will be in exhibition during the entire conference.

Social Programme

Welcome Reception - Monday, 17 September, 18h-20h

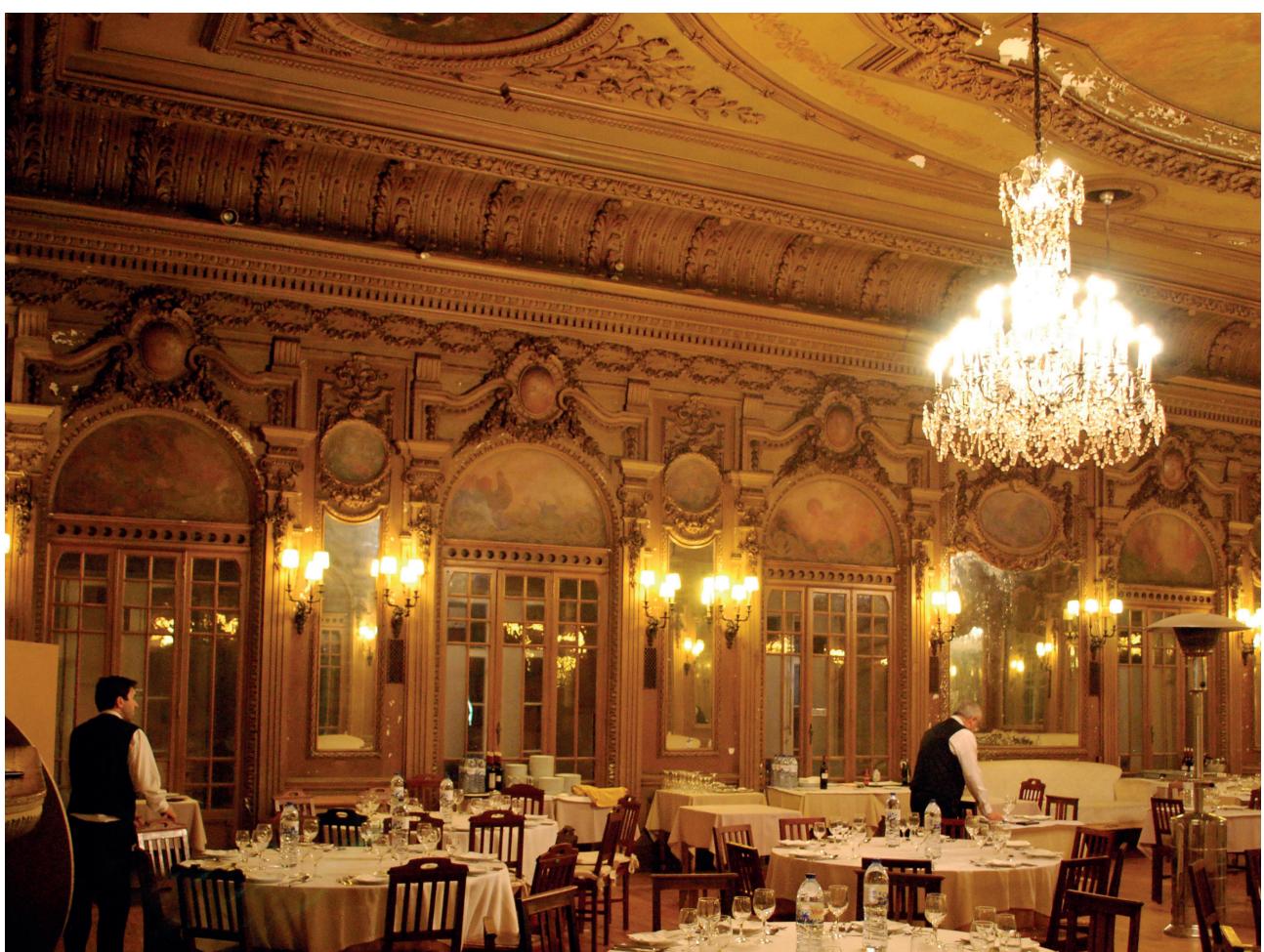
The welcome reception will take place at the hall 02 of the Congress Center (see the Congress Center Floor Plans).



Conference Dinner - Wednesday, 18 September, 20h

The conference dinner will take place at **Casa do Alentejo**, Portas de Santo Antão Street, 58, Lisboa. The best way to reach Casa do Alentejo is to take the **subway Green line to 'Rossio'** or **Blue line to 'Restauradores'** (see Map in page 13). **VERY IMPORTANT:** Please don't forget to bring your dinner voucher.

(www.casadoalentejo.com.pt/en)





Getting to Lisbon by air

Direct flights from most of European cities, North or South America and Africa land at the Portela Airport, terminal 1. A taxi ride from the airport to IST is about 4-5 km that takes 10-15 min, depending on traffic, and should cost around 8€. To downtown the taxi ride is about 7 km and should cost around 10€. 1.60€ is charged for the transportation of luggage or animals. A sure option is the "Taxi Voucher" a prepaid taxi service starting at 16.40€, on sale at the "Information Desk" in the arrival terminal. Lisbon Airport has its own Metro Station, Aeroporto - red line (see map of Lisbon with subway lines). Other options are the AeroBus and the Aeroshuttle (3.5€).

Getting to Lisbon by car

Drivers can use highway A1 when coming from the North, highway A2, through the 25 de Abril bridge, when coming from the South, and highway A12, through Vasco da Gama bridge, when coming from the Northeast.

Getting to Lisbon by train

The St. Apolónia station is the terminal for trains arriving from the North of Portugal. Another option is to use the train station Oriente. From the South of Portugal an option is to use the train station Oriente. Connections to the metro lines exist at both stations (St. Apolónia - blue line, Oriente - red line).

Moving around

Taxi:

Lisbon is served by an extensive network of public transportation that can take you anywhere in the city and to its surroundings. Taxis (black and green or beige) are cheap when comparing to most of the European countries. They can be called by phone, picked-up on taxi plazas or stopped on the street. The fare on the taxi meter should start at 3.25€ (daytime pick-up) or 3.90€ (nighttime). Outside the city limits, city fares

are charged per kilometer. 1.60€ is charged for the transportation of luggage or animals. Before taking a taxi, inquire about the fare.

Metro:

The Lisbon Metro is a very comfortable and easy way to reach most of the city, from 6:30 to 1:00. The Metro lines reach most of the city being the Metro stations close to IST:

- Alameda (red and green line)
- Saldanha (red and yellow line)

Bus

The bus routes cover all Lisbon and extend to its outskirts. The tickets can be pre-paid, at the counters of Carris, the surface transportation operator for Lisbon, or bought aboard the bus, electric cars or funiculars.

For IST hop off on one of the following bus stops:

- Av. Manuel da Maia
- Av. Rovisco Pais
- Arco do Cego

Metro and Bus Fares:

Reusable card – 0.50 €

METRO/CARRIS – 1.45 €

CARRIS Bus – 1.80 € (on board fare)

Tram – 2.85 € (on board fare)

Trains

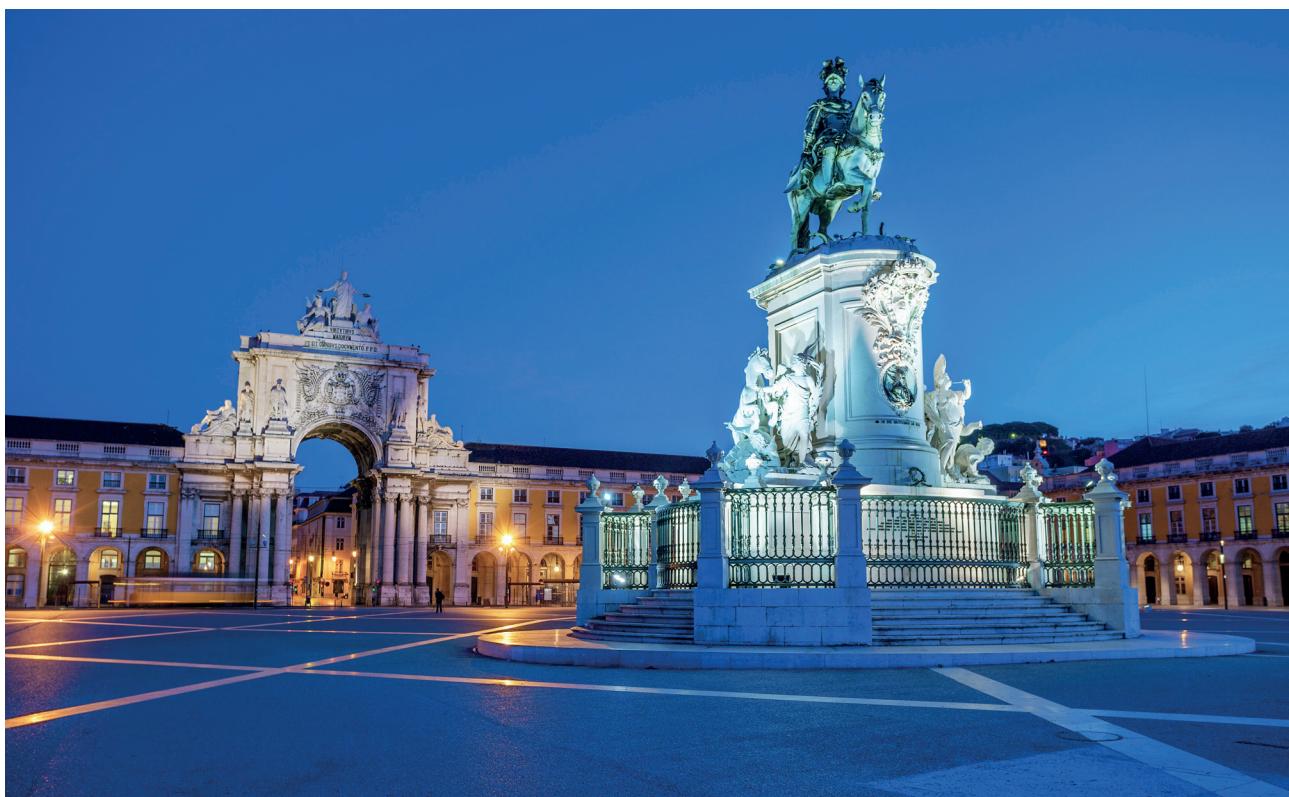
Suburban trains to Estoril and Cascais depart from the Cais do Sodré train station, to the south of the river cities from Roma-Areeiro (Entrecampos) while to Sintra the trains depart from Rossio train station or Oriente (Entrecampos). The ride to Cascais or to Sintra should take about 35-45 min, each way. The train ride to south of the river is a highlight as the train will cross the 25 de Abril bridge with magnificent views of Lisbon.

For IST the nearby train stations are:

- Roma-Areeiro
- Entrecampos

Other general information

- National emergency number: 112
- Time zone: GMT +1 summer time
- Electricity: 220V, 50 Hz with standard European power sockets
- Temperature: Average high 28°C, Average low 18°C
- Currency: Euro (€)
- Banks: working hours are 08:30 h – 15:00 h (*Monday-Friday*)
- Pharmacies: 09:00 h – 19:00 h
- Shops: 09:00 – 19:00 h
- Shopping Malls: 10:00 – 23:00 h



Main Museums in Lisbon:

- **Centro de Arte Moderna**
(Modern Art Museum)
- **Museu do Oriente**
(Oriente Museum)
- **Museu Calouste Gulbenkian**
(Calouste Gulbenkian Museum)
- **Museu dos Coches**
(Coach Museum)
- **Museu Nacional de Arte Antiga**
(National Museum for Ancient Art)
- **Colecção Berardo**
(The Berardo Collection)
- **Museu do Azulejo**
(Tile Museum)

Main Monuments in Lisbon:

- **Aqueduto das Águas Livres**
(Águas Livres' Aqueduct)
- **Basílica da Estrela**
(Estrela Basilica)
- **Castelo de São Jorge**
(Saint George's Castle)
- **Sé Patriarcal**
(Patriarchal Church)
- **Mosteiro dos Jerónimos**
(Jerónimos Monastery)
- **Padrão dos Descobrimentos**
(Monument to the Overseas Discoveries)
- **Torre de Belém**
(Belém Tower)

Map of Lisbon



EngOpt2018

6th International Conference on Engineering Optimization

Instituto Superior Técnico
Lisbon • Portugal

17-19 September, 2018

Scientific
Programme

Programme at a glance

Hours	Sunday 16 th September	Monday 17 th September	Tuesday 18 th September	Wednesday 19 th September
08:40				
09:00				
09:30				
10:00				
10:10				
10:20				
10:35				
11:00				
11:40				
12:00				
12:35				
14:00				
14:30				
15:00				
15:30				
16:00				
16:15				
17:00				
17:30				
17:55				
18:00				
19:00				
20:00				
				CONFERENCE DINNER
				WELCOME RECEPTION

Parallel Sessions

Hours	Monday 17 th September					Tuesday 18 th September					Wednesday 19 th September					17 th -19 th September
	MA	02.1	02.2	01.1	MA	02.1	02.2	01.1	MA	02.1	02.2	01.1	POSTERS			
	DO-07	DO-08	EA-01	NO-04	DO-15	MS02 - 01	MS04 - 02	MS03 - 01					Hall02			
08:40 - 10:10					1218	1130	1292	1023	1001	1115	1284	1220	1018			
	REGISTRATION					1177	1017	1320	1122	1074	1094	1285	1282	1077		
10:10 - 10:20					1169	1011	1197	1141	1092	1057	1297	1329	1087			
10:20 - 10:35	OPENING					1174	1081	1194	1156	1175	1072	1327	1088			
	Coffee-Break					1110	1082	1195	1242	1299	1301	1337		1124		
	Coffee-Break													1150		
12:35 - 14:00	Lunch					Lunch					Lunch					
	DO-01	DO-02	IA-01	NO-01	DO-09	DO-10	SA - 01	NO-05	DO-16	DO-17	IA-05	MS04 - 03	1256			
	1102	1134	1033	1245	1015	1054	1125	1044	1078	1123	1031	1086	1149			
	1163	1159	1260	1129	1207	1293	1114	1051	1068	1155	1133	1205				
10:35 - 12:35	1117	1166	1138	1069	1334	1090	1232	1062	1120	1173	1140	1246				
	1037	1145	1240	1067	1168	1128	1192	1084	1225	1286	1161	1270				
	1004	1227	1266	1027	1185	1154	1259	1049	1009	1317	1132	1264				
	1189	1258	1091	1319	1041	1316	1339	1104	1215	1186		1321				
	Lunch					Lunch					Lunch					
	DO-03	DO-04	IA-02	NO-02	DO-11	DO-12	IA-04	NO-06	DO-18	DO-19	IA-06	NO-08				
	1053	1020	1055	1304	1025	1254	1263	1136	1099	1182	1010	1341				
	1298	1032	1046	1089	1036	1303	1003	1158	1101	1228	1287	1093				
14:00 - 16:00	1172	1098	1071	1024	1193	1289	1007	1176	1343	1196	1262	1100				
	1061	1148	1085	1022	1290	1276	1332	1178	1309	1344	1278	1121				
	1144	1008	1273	1014	1244	1275	1127	1288	1184	1342	1075	1096				
	1045	1331	1279	1083	1026	1236	1126	1002	1252	1283		1204				
16:00 - 16:15	Coffee-Break					Coffee-Break					CLOSING					
	DO-05	DO-06	IA-03	NO-03	DO-13	DO-14	MS04 - 01	NO-07								
	1247	1034	1239	1030	1160	1131	1028	1056								
	1281	1039	1070	1042	1035	1311	1063	1079								
16:15 - 17:55	1167	1147	1269	1103	1016	1274	1187	1066								
	1157	1162	1006	1165	1113	1146	1267	1295								
	1170	1105	1294	1179	1109	1060	1277	1229								

Do - Design Optimization and Inverse Problems; IA - Industrial Applications; NO - Numerical Optimization Techniques; EA - Efficient Analysis and Reanalysis Techniques; SA - Sensitivity Analysis;
 MS02 - Mini-Symposium: New Challenges in Derivative-free Optimization Methods for Engineering Optimization;
 MS03 - Mini-Symposium: Optimization Methods in Biomechanics and Biomedical Engineering
 MS04 - Mini-Symposium: Optimization of Composite Structures

Sessions

Monday

September 17, 2018

10:35 h – 12:35 h

ROOM MA	TOPIC DO Session 01	Design Optimization and Inverse Problems	Chair: <i>Erik Lund</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1102	Advances in homogenization-based topology optimization for high-resolution microstructures	Jeroen Peter Groen, Ole Sigmund	Jeroen Groen
10:55-11:15	1163	Adaptive mesh refinement and efficient preconditioning for topology optimization with discrete geometric components	Julián Norato, Shanglong Zhang	Julián Norato
11:15-11:35	1117	Thickness Constraints for Topology Optimization Using the Fictitious Physical Model	Takayuki Yamada	T. Yamada
11:35-11:55	1037	Combined length scale and overhang angle control in minimum compliance topology optimization for additive manufacturing.	Jeroen Pellens, Geert Lombaert, Boyan Lazarov, Mattias Schevenels	Jeroen Pellens
11:55-12:15	1004	Optimization of infill structures with coupled homogenization and level-set methods	Perle Geoffroy Donders	Perle Donders
12:15-12:35	1189	Infill Analysis and Optimization in Additive Manufacturing Applications	Gian Marco Tassi, Qiren Gao, Alejandro R Diaz	Alejandro Diaz

ROOM 02.1	TOPIC DO Session 02	Design Optimization and Inverse Problems	Chair: <i>Afzal Suleman</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1134	Exploring the fitness landscape of a realistic turbofan rotor blade optimization	Jakub Kmec, Sebastian Schmitt	Jakub Kmec
10:55-11:15	1159	Aerodynamic Optimization of Turbine Airfoils Using Multi-Fidelity Surrogate Models	Bernhard Poethke, Stefan Voelker, Konrad Vogeler	Bernhard Poethke
11:15-11:35	1166	Finite element model updating of a wind turbine blade - a comparative study	Marlene Theresa Bruns, Benedikt Hofmeister, Dorian Pache, Raimund Rolfes	Marlene Bruns
11:35-11:55	1145	The performance of a modified harmony search algorithm in the structural identification and damage detection of a scaled offshore wind turbine laboratory model	Mahmoud M Jahjouh, Raimund Rolfes	Mahmoud Jahjouh
11:55-12:15	1227	Immersed component-driven shape optimization with adaptive mesh refinement	M. Troya, D.Tortorelli	D.Tortorelli
12:15-12:35	1258	Optimization of the Propeller-Driven Propulsion System for a Small UAV	Nuno Moita, Andre C Marta	Nuno Moita

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ROOM 02.2	TOPIC IA Session 01	Industrial Applications	Chair: <i>Vassili Toropov</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1033	Surrogate Based Shape Optimization of Lightening Holes in Aircraft Fuselage Beams	Erdem Acar, Yiğit Anıl Yücesan	Erdem Acar
10:55-11:15	1260	Multidisciplinary Optimisation of Flexible Aircraft Structures in Consideration of Flight Control System Demands in the Time Domain	Daniel Nussbächer, Fernass Daoud, Ögmundur Petersson, Mirko Hornung	Daniel Nussbächer
11:15-11:35	1138	Optimization of Two-Stage Centrifugal Pump of Rocket Engine	Vasilii M. Zubanov, Andrei Volkov, Valeriy Matveev, Grigorii Popov, Oleg Baturin, Yulia Novikova	Yulia Novikova
11:35-11:55	1240	Robust Optimization Formulations for Waterflooding Management in Reservoir Engineering	Silvana Maria Afonso, Jefferson Pinto, Ramiro Willmersdorf	Silvana Maria Afonso
11:55-12:15	1266	Metaheuristic Optimization of Natural Resources in Thermal Cracking Process	Fernando Boto, Diana Marjarres, Itziar Landa	Fernando Boto
12:15-12:35	1091	Correlation analysis between the vibroacoustic behavior of steering gear and ball nut assemblies in the automotive industry	Paul Alexandru Bucur, Klaus Frick, Philipp Hungerländer	Paul Bucur

ROOM 01.1	TOPIC NO Session 01	Numerical Optimization Techniques	Chair: <i>Sergio Gutierrez</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1245	On contact shape optimization problems related to displacement control	Istvan Paczelt, Zenon Mróz	Istvan Paczelt
10:55-11:15	1129	Multi-objective control problems for optimal isolation of elastic structures from vibration	Mark M. Kogan, Dmitry V Balandin, Ruslan Biryukov	Ruslan Biryukov
11:15-11:35	1069	A differential evolution to find the best material groupings in truss optimization	Aonso Celso de Castro Lemonge, José Carvalho, Patrícia Habib Hallak	José Carvalho
11:35-11:55	1067	Performance assessment of metaheuristic algorithms for structural optimization taking into account the influence of control parameters	Wouter Dillen, Geert Lombaert, Nathalie Voeten, Mattias Schevenels	Wouter Dillen
11:55-12:15	1027	Finite Element Mesh Size Optimization For Steel Bolted Connection	Mario Galic, Hrvoje Draganic, Tihomir Doksanovic	Hrvoje Draganic
12:15-12:35	1319	Applicability of simplified models of railways tracks obtained by optimization and fitting techniques	Zuzana Dimitrovová, André Rodrigues	Zuzana Dimitrovová

Sessions

Monday

September 17, 2018

14:00 h – 16:00 h

ROOM MA	TOPIC DO Session 03	Design Optimization and Inverse Problems	Chair: <i>Alejandro Diaz</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1053	Topology optimization of non-linear structures	<i>Mathias Wallin, Niklas Ivarsson, Daniel Tortorelli</i>	<i>Mathias Wallin</i>
14:20-14:40	1298	Topology Optimization of Compliant Fluidic Control Structures undergoing Large Deformations	<i>Prabhat Kumar, Paola Fanzio, Luigi Sasso, Matthijs Langelaar</i>	<i>Prabhat Kumar</i>
14:40-15:00	1172	Efficient transient topology optimization through dynamic substructuring	<i>Gore Lukas Bluhm, Niels Aage</i>	<i>Gore Bluhm</i>
15:00-15:20	1061	Considering linear buckling for 3D density based topology optimization	<i>Robert Dienemann, Axel Schumacher, Sierk Fiebig</i>	<i>Robert Dienemann</i>
15:20-15:40	1144	Topology optimization for compliance minimization and actuator layout to vibration suppress	<i>Juliano Fagundes Gonçalves, Daniel Milbrath De Leon, Eduardo Perondi</i>	<i>Juliano Gonçalves</i>
15:40-16:00	1045	On the use of complex input power in topology optimization of one-material vibrating structures for obtaining displacement anti-resonances close to frequencies of interest	<i>Olavo M. Silva, Miguel Neves, Arcanjo Lenzi</i>	<i>Olavo M. Silva</i>

ROOM 02.1	TOPIC DO Session 04	Design Optimization and Inverse Problems	Chair: <i>Miguel Neves</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1020	Parallel robots like a portable reorientation system for tracking satellites	<i>Jhonatan Fernando Eulopa Hernandez, Eusebio Eduardo Hernández Martínez, Jorge L. Garrido Téllez</i>	<i>Jhonatan Hernandez</i>
14:20-14:40	1032	Mathematical modelling for an optimal monitoring design in quality control of traffic	<i>Miguel E. Vázquez-Méndez, Lino J. Alvarez-Vázquez, Gerardo Casal, Néstor García-Chan, Aurea Martínez</i>	<i>Miguel Vázquez-Méndez</i>
14:40-15:00	1098	Fire risk modeling using artificial neural networks	<i>Luiza Cintra Fernandes, Marcelo Nero, Rosangela Saher Correa Cintra, Plínio da Costa Temba</i>	<i>Luiza Cintra Fernandes</i>
15:00-15:20	1148	Beyond the Harris' model to optimally define lot sizes in a make-to-stock multi-line production system	<i>Marco Bortolini, Silvia Errani, Mauro Gamberi, Francesco Pilati, Alberto Regattieri</i>	<i>Marco Bortolini</i>
15:20-15:40	1008	An Optimal Strategy for Treating Alzheimer's Disease	<i>Samuel E. Moskowitz</i>	<i>Samuel Moskowitz</i>
15:40-16:00	1331	Optimal Spectral Matching of Strong Ground Motion by Opposition-Switching Search	<i>Mohsen Shahrouzi</i>	<i>Mohsen Shahrouzi</i>

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ROOM 02.2	TOPIC IA Session 02	Industrial Applications	Chair: <i>Vikrant Aute</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1055	The adaptation of the "Express-3D" code for the hypersonic flows simulation	Evgeny Shilnikov	Evgeny Shilnikov
14:20-14:40	1046	Application of CFD model parameter optimisation for gas explosions	Anna-Lena Both	Anna-Lena Both
14:40-15:00	1071	On the optimization of recirculated aquaculture systems	Stepan Papacek, Karel Petera	Stepan Papacek
15:00-15:20	1085	Optimizing the design and control of decentralized water supply systems – a case-study of a hotel building	Philipp Leise, Lena Altherr	Philipp Leise
15:20-15:40	1273	Two-stage, multi-objective optimisation framework for an efficient pathway to decarbonise the power sector	Ruben Bravo, Daniel Friedrich	Ruben Bravo
15:40-16:00	1279	Optimal Feed Temperature for the Decomposition Process of Hydrogen Peroxide Occurring in the Reactor with Fixed-Bed of Commercial Catalase	Ireneusz Grubecki	Ireneusz Grubecki

ROOM 01.1	TOPIC NO Session 02	Numerical Optimization Techniques	Chair: <i>José Viriato Santos</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1304	HPC Implementation of the Multipoint Approximation Method for Large Scale Design Optimization Problems Under Uncertainty	Vassili Toropov, Yury Korolev, Konstantin Barkalov, Victor Gergel	Vassili Toropov
14:20-14:40	1089	Optimality Conditions for Sparse Quadratic Optimization Problem	Duygu Üçüncü, Süreyya Akyüz, Erdal Güç, Gerhard Wilhelm Weber	Duygu Üçüncü
14:40-15:00	1024	A Surrogate-Assisted Cooperative Co-evolutionary Algorithm for solving High Dimensional, Expensive and Black Box Optimization Problems	Julien Blanchard, Charlotte Beauthier, Timeteo Carletti	Julien Blanchard
15:00-15:20	1022	Alternatives to Evolutionary Optimization Algorithms in the Context of Traditional Stochastic Optimization Methods in the Smart Area Technical Equipment Application	Bohumír Garlík	Bohumír Garlík
15:20-15:40	1014	Surrogate-assisted optimization with online selection or aggregation of models	Charlotte Beauthier, Caroline Sainvitu, Tariq Benamara	Charlotte Beauthier
15:40-16:00	1083	Optimization of parallel computations for simulating water purification processes by electromagnetic method	Tatiana Kudryashova	Tatiana Kudryashova

Sessions

Monday

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16:15 h – 17:55 h

ROOM MA	TOPIC DO Session 05	Design Optimization and Inverse Problems	Chair: <i>Daniel Tortorelli</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1247	Fatigue and stress constrained topology optimization of 3D structures subjected to multiple load cases	Erik Lund, Jacob Oest	Erik Lund
16:35-16:55	1281	Topology optimization of structures in contact	Luis Felipe Fernandez, Daniel Tortorelli	Luis Felipe Fernandez
16:55-17:15	1167	Critical Plane approach for fatigue resistance using stress-based topology optimization	Maxime Jean-Michel Collet, Simon Bauduin, Eduardo Fernández Sánchez, Pablo Ignacio Alarcón Soto, Pierre Duysinx	Maxime Collet
17:15-17:35	1157	On the relation between length scale control and stress constraints in density based topology optimization	Boyan Lazarov, Oded Amir	Boyan Lazarov
17:35-17:55	1170	Constraint Aggregation in topology optimization	Eduardo Fernández Sánchez, Maxime Jean-Michel Collet, Simon Bauduin, Pablo Ignacio Alarcón Soto, Pierre Duysinx	Eduardo Fernández Sánchez

ROOM 02.1	TOPIC DO Session 06	Design Optimization and Inverse Problems	Chair: <i>Silvana Afonso</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1034	Optimal control of phytoremediation techniques for heavy metals removal in shallow water	Lino J. Alvarez-Vazquez, Aurea Martínez, Carmen Rodriguez, Miguel E. Vázquez-Méndez, Miguel A. Vilar	Lino J. Alvarez-Vazquez
16:35-16:55	1039	Cartesian Genetic Programming applied to equivalent electric circuit identification	Marco André Abud Kappel, Roberto Pinheiro Domingos, Ivan Napoleão Bastos	Marco André Abud Kappel
16:55-17:15	1147	Meta-Heuristic Algorithm for Collaborative Robot Swarm applied to Pollution Scanning Underwater Missions	Itziar Landa, Diana Manjarres, Sonia Bilbao	Itziar Landa
17:15-17:35	1162	Bilevel Joint Optimization for Product Family Architecting Considering Recycle Disassembling	Gang Du, Jing Zhao, Xiaojie Liu	Gang Du
17:35-17:55	1105	Optimization of object-relational database structure	Ainars Auzins, Janis Eiduks	Ainars Auzins

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ROOM 02.2	TOPIC IA Session 03	Industrial Applications	Chair: <i>Jorge Ambrósio</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1239	Trajectory optimization of industrial robots with a Feasible Direction Interior Point Algorithm	Jose Herskovits, Michel Henrique Alba, Luiz Ribeiro	Jose Herskovits
16:35-16:55	1070	Multi-criteria optimization of pressure screen systems in paper recycling – Balancing quality, yield, energy consumption and system complexity.	Tim Moritz Müller, Lena Altherr, Marja Ahola, Samuel Schabel, Peter Pelz	Tim Moritz Müller
16:55-17:15	1269	The use of Bayesian Optimisation techniques for the pantograph-catenary dynamic interaction stochastic problem	Santiago Gregori Verdú, Manuel Tur, Ana M. Pedrosa, Javier Fuenmayor	Manuel Tur
17:15-17:35	1006	Mitigation of railway wheel rolling noise by using advanced optimization techniques	Jorge Gutiérrez-Gil, Xavier García-Andrés, Jose Martínez-Casas, Enrique Nadal, Francisco Denia	Jorge Gutiérrez-Gil
17:35-17:55	1294	Optimal Scheduling of Tunnel Inspection and Monitoring for Leveling Yearly Budget	Hiroshige Dan, Ayaka Yamamoto, Hiroaki Tanaka-Kanekiyo, Atushi Sutoh, Osamu Maruyama, Takashi Satoh	Ayaka Yamamoto

ROOM 01.1	TOPIC NO Session 3	Numerical Optimization Techniques	Chair: <i>Filipa Moleiro</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1030	Power Loss Reduction through Network Reconfiguration and Distributed Generation By Means of Feasibility-Preserving Evolutionary Optimization	Slawomir Koziel, Alberto Rojas, Szczepan Moskwa, Mohamed F. Abdel-Fattah	Slawomir Koziel
16:35-16:55	1042	Network's Trip Demand Estimation as a Problem of Combinatorial Optimization	Alexander Krylatov, Anastasiya Shirokolobova	Alexander Krylatov
16:55-17:15	1103	Effect of different agent-behaviour on a traffic simulation framework	Ronny Hartanto, Alexander Struck, Anoshan Indreswaran, Arindam Mahanta, Yu-Jeng Kuo	Ronny Hartanto
17:15-17:35	1165	A Branch and bound method for globally optimising valve locations in water distribution networks	Filippo Pecci, Edo Abraham, Ivan Stoianov	Filippo Pecci
17:35-17:55	1179	Optimization of Heat Exchanger Flow Paths Using a Novel Integer Permutation Based Genetic Algorithm	Vikrant C Aute, Zhenning Li	Vikrant C Aute

Sessions

Tuesday

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08:40 h – 10:20 h

ROOM MA	TOPIC DO Session 7	Design Optimization and Inverse Problems	Chair: <i>Boyan Lazarov</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1218	Integration of flange connections in the Graph and Heuristic Based Topology Optimization of crashworthiness structures	<i>Simon Link, Dominik Schneider, Axel Schumacher, Christopher Ortmann</i>	<i>Simon Link</i>
09:00-09:20	1177	Implementation of maximum length scale control within the context of an industrial topology optimization software	<i>Frédéric Duboeuf, Alain Remouchamps, Eduardo Fernández, Etienne Lemaire</i>	<i>Frédéric Duboeuf</i>
09:20-09:40	1169	Development of a Topological Optimization framework for 2D problems using OpenFOAM	<i>Pablo Ignacio Alarcón Soto, Eduardo Fernández Sánchez, Simon Bauduin, Maxime Jean-Michel Collet, Pierre Duysinx</i>	<i>Pablo Ignacio Alarcón Soto</i>
09:40-10:00	1174	Topology Optimization for Engineered Flow Battery Electrodes	<i>Victor A. Beck, Todd Weisgraber, Anna Ivanovskaya, Swetha Chandrasekaran, Bryan Moran, Seth Watts, Daniel Tortorelli, Eric Duoss, Juergen Biener, Michael Stadermann, Marcus Worsley,</i>	<i>Victor A. Beck</i>
10:00-10:20	1110	Imposing 5-axis milling constraints in density-based topology optimization	<i>Matthijs Langelaar, David Jon Weinberg, Nam H. Kim</i>	<i>Matthijs Langelaar</i>

ROOM 02.1	TOPIC DO Session 8	Design Optimization and Inverse Problems	Chair: <i>Julian Norato</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1130	On comparison of solution methods for 3D contact shape optimization problems with friction	<i>Petr Beremlјiski</i>	<i>Petr Beremlјiski</i>
09:00-09:20	1017	Shape optimization of geometric constraints without integration along rays	<i>Florian Feppon, Grégoire Allaire, Felipe Bordeu, Julien Cortial, Charles Dapogny</i>	<i>Florian Feppon</i>
09:20-09:40	1011	Shape optimization of strained gridshells	<i>Jef Rombouts, Geert Lombaert, Lars De Laet, Mattias Schevenels</i>	<i>Jef Rombouts</i>
09:40-10:00	1081	Development of Aerodynamic Shape Optimization Methods for Aeroelastic Wing Design	<i>Cian Conlan-Smith, Casper Schousboe Andreassen, Néstor Ramos-García, Ole Sigmund</i>	<i>Cian Conlan-Smith</i>
10:00-10:20	1082	Global optimized shapes of aerospace vehicle models	<i>Adriana Nastase</i>	<i>Adriana Nastase</i>

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ROOM 02.2	TOPIC EA Session 1	Efficient Analysis and Reanalysis Techniques	Chair: <i>Cristóvão Mota Soares</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1292	Consideration of Structural Member Deformation Constraints using Lagrange Multipliers	<i>Luiz Fernando Martha, Guilherme Barros, Evandro Parente Junior</i>	<i>Luiz Fernando Martha</i>
09:00-09:20	1320	Efficient multilevel solution of topology optimization problems with eigenvalues	<i>Federico Ferrari, Ole Sigmund</i>	<i>Federico Ferrari</i>
09:20-09:40	1197	A Modern Free-Wake Panel Method Using Unstructured Meshes	<i>Mario Bras, Curran Crawford, Afzal Suleman</i>	<i>Mario Bras</i>
09:40-10:00	1194	Identification of parameters for material damage models by inverse analysis and optimization, using finite element simulation	<i>Rui Amaral, Abel Santos, Sara Miranda</i>	<i>Rui Amaral</i>
10:00-10:20	1195	Analysis and optimization of formability tests for composite sandwich metal-polymer materials	<i>Sara Miranda, Abel Santos, Rui Amaral, Luís Malheiro</i>	<i>Sara Miranda</i>

ROOM 01.1	TOPIC NO Session 4	Numerical Optimization Techniques	Chair: <i>Tomasz Sokol</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1023	Vehicle Configuration Design using Cellular-Division and Level-set based Topology Optimization	<i>Ramana Grandhi, Hao Li, Marcelo Kobayashi Raymond M. Kolonay</i>	<i>Ramana Grandhi</i>
09:00-09:20	1122	Adaptive Topology and Shape Optimization with Integrated Casting Simulation	<i>Thilo Franke, Ronald Bartz, Sierk Fiebig, Thomas Vietor, Julian Hage, Anneke vom Hofe</i>	<i>Thilo Franke</i>
09:20-09:40	1141	A Heuristic Approach to Subdomain Oriented Multi-Material Topology Optimization	<i>Katarzyna Tajs-Zielinska, Bogdan Bochenek</i>	<i>Katarzyna Tajs-Zielinska</i>
09:40-10:00	1156	Topology optimization of periodic 3D heat transfer problems with a 2D design	<i>Jonas Lundgren, Anders Klarbring, Jan-Erik Lundgren, Carl-Johan Thore</i>	<i>Jonas Lundgren</i>
10:00-10:20	1242	Reliability Based Design Optimization by using Metamodels	<i>Niclas Strömberg</i>	<i>Niclas Strömberg</i>

Sessions

Tuesday

September 18, 2018

10:35 h – 12:35 h

ROOM MA	TOPIC DO Session 09	Design Optimization and Inverse Problems	Chair: <i>Niclas Strömberg</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1015	Two-scale topology optimization using neural network surrogate models	<i>Daniel White, Bill Arrighi, Jun Kudo, Seth Watts</i>	<i>Daniel White</i>
10:55-11:15	1207	Minimization of the effective thermal expansion coefficient of composite material using a multi-scale topology optimization method	<i>Lidy Marcela Anaya Jaimes, William Martins Vicente, Renato Pavanello</i>	<i>Lidy Marcela Anaya Jaimes</i>
11:15-11:35	1334	Concurrent topological optimisation: optimisation of two components sharing the design space	<i>Massimiliano Gobbi, Federico Ballo, Giorgio Previati</i>	<i>Federico Ballo</i>
11:35-11:55	1168	Misalignment Topology Optimization	<i>Simon Bauduin, Pablo Ignacio Alarcón Soto, Eduardo Fernández Sánchez, Maxime Jean-Michel Collet, Satoru Ishikawa, Pierre Duysinx</i>	<i>Simon Bauduin</i>
11:55-12:15	1185	Topology optimization with the inertia relief method	<i>Carl-Johan Thore</i>	<i>Carl-Johan Thore</i>
12:15-12:35	1041	An alternative representation for density based topology optimization of fluid flows	<i>Casper Schousboe Andreasen</i>	<i>Casper S. Andreasen</i>

ROOM 02.1	TOPIC DO Session 10	Design Optimization and Inverse Problems	Chair: <i>Matthijs Langelaar</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1054	Designing compliant mechanisms for additive manufacturing. Controlling the manufacturability/functionality ratio through a flexible overhang constraint.	<i>Alain Garaigordobil, Rubén Ansola</i>	<i>Alain Garaigordobil</i>
10:55-11:15	1293	On Design Optimization of Heat Sinks with Curvature Considerations for Additive Manufacturing	<i>Y. Tateishi, H.Gohara, R. Kato, Y. Ikeda, V. Parque, T.Miyashita, Muhammad Khairi Faiz, M.Yoshida</i>	<i>Yoshihiro Tateishi</i>
11:15-11:35	1090	Optimum Adaptive Slicing Considering the Layer Strength of Fused Deposition Modelling Parts	<i>Gokulakrishnan J, Gurunathan Saravana Kumar</i>	<i>Gokulakrishnan J</i>
11:35-11:55	1128	Node to node requirements on the synthesis of mechanisms using minimum distance approach	<i>Igor Fernandez de Bustos, Vanessa García Marina, Gorka Urkullu, Haritz Uriarte</i>	<i>Igor Bustos</i>
11:55-12:15	1154	Towards Simulation-Aided Design of Single-Screw Extruders	<i>Sebastian Eusterholz, Stefanie Elgeti</i>	<i>S.Eusterholz</i>
12:15-12:35	1316	A New Engineering Environment Adapted to Preliminary Design in Industry	<i>Jean Bigeon, Emmanuel Bigeon, Eric Atienza</i>	<i>Jean Bigeon</i>

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ROOM 02.2	TOPIC SA Session 1	Sensitivity Analysis	Chair: <i>Haitao Ma</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1125	Adjoint method for Topological Derivatives for optimization tasks with material and geometrical nonlinearities	Katrin Weider, Axel Schumacher	Katrin Weider
10:55-11:15	1114	Second-Order Inverse Reliability Analysis: a New Methodology to the Treatment of Reliability in Engineering System	Gustavo Libotte, Francisco Neto, Fran Sérgio Lobato, Gustavo Platt	Gustavo Barbosa Libotte
11:15-11:35	1232	sensitivity of shape parameters of brake systems under squeal noise criteria	Mohnasundaram Pradeep, Gillot Frederic, Basset Sebastien, Shimoyama Koji	Mohnasundaram Pradeep
11:35-11:55	1192	On the treatment of multirow interface in aerodynamic turbomachinery adjoint solvers	Simão Santos Rodrigues, Andre C Marta	Simão Santos Rodrigues
11:55-12:15	1259	Efficient Aerodynamic Optimization of Aircraft Wings	Pedro Rodrigues, Andre C Marta	Pedro Rodrigues
12:15-12:35	1339	Experimental Verification of Nonlinear Damping Induced by Slipping Interfaces	Yifan Yang	Yifan Yang

ROOM 01.1	TOPIC NO Session 5	Numerical Optimization Techniques	Chair: <i>Pierre Duysinx</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1044	Elasto-Plastic topology optimization under stochastic loading conditions	Janos Logo, Bartłomiej Blachowski, Piotr Tazowski	Janos Logo
10:55-11:15	1051	Bio-inspired optimization algorithms for limit analysis of frame structures	Alessandro Pluchino, Annalisa Greco, Francesco Cannizzaro, Ilaria Fiore	Annalisa Greco
11:15-11:35	1062	On solving large-scale plastic layout optimization of trusses by interior point methods	Alemseged Gebrehiwot Weldeyesus	A.Weldeyesus
11:35-11:55	1084	Topology Optimization Involving High-cycle Fatigue	Shyam Suresh, Stefan B Lindström, Carl-Johan Thore, Bo Torstenfelt, Anders Klarbring	Shyam Suresh
11:55-12:15	1049	Biomimetic topology optimization with multiple load cases	Michał Nowak	Michał Nowak
12:15-12:35	1104	A Macro-Scale Topology Optimization Method for Flows through Solid Structure Arrays	Paul Lacko, Geert Buckinx, Martine Baelmans	Paul Lacko

Sessions

Tuesday

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14:00 h – 16:00 h

ROOM MA	TOPIC DO Session 11	Design Optimization and Inverse Problems	Chair: <i>Ramana Grandhi</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1025	Discussion on Buckling Load Optimization for Continuum Models Subjected to Eccentric Loads	<i>Pauli Pedersen, Niels Leergaard Pedersen</i>	<i>Pauli Pedersen</i>
14:20-14:40	1036	Optimization of fillet stress concentration under combined loading	<i>Niels Leergaard Pedersen</i>	<i>Niels Pedersen</i>
14:40-15:00	1193	Theory of grillage optimization – a discrete setting	<i>Karol Bolbotowski</i>	<i>K. Bolbotowski</i>
15:00-15:20	1290	On recent developments in layout optimization of large-scale trusses	<i>Tomasz Sokół</i>	<i>Tomasz Sokół</i>
15:20-15:40	1244	Optimal design of new steel connections	<i>Luigi Palizzolo, Salvatore Benfratello, Pietro Tabbuso</i>	<i>Luigi Palizzolo</i>
15:40-16:00	1026	Reliability-based design optimization of warping included curved on plane beam with chain hoist load	<i>Mariusz Poński, Andrzej Sluzalec</i>	<i>Mariusz Poński</i>

ROOM 02.1	TOPIC DO Session 12	Design Optimization and Inverse Problems	Chair: <i>Jacek Ptaszy</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1254	Worst Case Optimal Design using Small Amplitude Homogenization	<i>Sergio Gutiérrez</i>	<i>Sergio Gutiérrez</i>
14:20-14:40	1303	Complex system of identification of material properties of microstructure using bioinspired method	<i>Arkadiusz Poteralski</i>	<i>A.Poteralski</i>
14:40-15:00	1289	An algorithm for constrained optimization with applications to the design of mechanical structures	<i>Cristian Barbarosie, Sérgio Lopes, Anca-Maria Toader</i>	<i>Cristian Barbarosie</i>
15:00-15:20	1276	Optimisation of a composite beam-based load bearing structure, for an ultra-efficient electric vehicle.	<i>Wojciech Skarka, Michał Filip Sosnowski</i>	<i>Wojciech Skarka</i>
15:20-15:40	1275	An optimization approach for an ultra efficient electric racing vehicle's supporting system based on composite shell elements.	<i>Wojciech Skarka, Tomasz Pabian</i>	<i>Tomasz Pabian</i>
15:40-16:00	1236	Sustainable design optimization of reinforced concrete frames considering CO₂ emission minimization	<i>Alberto Martins, Luís Simões, João Negrão</i>	<i>Alberto Martins</i>



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ROOM 02.2	TOPIC IA Session 04	Industrial Applications	Chair: <i>Janos Logo</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1263	Multimaterial Topology Optimization of a Ravigneaux Planetary Gear	<i>P. Duysinx, Pablo Alarcón Soto, S.Bauduin, E. Fernández Sánchez, J. Jossieaux, S. Gohy, M.Bruyneel, J.-M. Vaassen, P. Devincenzo, K. Kimura, R.Schuermans, S.Ishikawa</i>	<i>Pierre Duysinx</i>
14:20-14:40	1003	Topology optimization of reinforced concrete structure using truss-like material model	<i>Kemin Zhou, Zhiyi Yang</i>	<i>Kemin Zhou</i>
14:40-15:00	1007	Advanced methodologies for topology and geometry optimization of noise control devices	<i>B. Ferrández, J. Martínez-Casas, E. Nadal, Juan J. Ródenas, F. Denia</i>	<i>Borja Ferrández</i>
15:00-15:20	1332	Topology optimization of a steel joint for temporary space frames	<i>Daan Van Cauteren, Jeroen Pellens, Mathias Van de Winkel, Mattias Schevenels</i>	<i>Daan Van Cauteren</i>
15:20-15:40	1127	Design optimization of Cover Panel of engine-included system using Topography Optimization	<i>Hyun-Guk Kim, Nerve Can, Seongyeol GooSemyung Wang</i>	<i>Hyun-Guk Kim</i>
15:40-16:00	1126	Industrial challenges for level-set-driven mesh-evolution-based topology optimization	<i>Felipe Bordeu, Julien Cortial, Florian Feppon</i>	<i>Julien Cortial</i>

ROOM 01.1	TOPIC NO Session 06	Numerical Optimization Techniques	Chair: <i>Carl-Johan Thore</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1136	One good reason for early termination of Krylov solvers in topology optimization	<i>Asger Limkilde, Anton Evgrafov, Jens Gravesen</i>	<i>Asger Limkilde</i>
14:20-14:40	1158	Adaptive strategies for fail-safe topology optimization	<i>Olaf Ambroziewicz, Benedikt Kriegesmann</i>	<i>Olaf Ambroziewicz</i>
14:40-15:00	1176	Transient topology optimization of vibro-acoustic problems	<i>Cetin Batur Dilgen, Niels Aage</i>	<i>Cetin Batur Dilgen</i>
15:00-15:20	1178	Level set topology optimization of coupled mechanical-acoustic problems	<i>Sumer Bartug Dilgen, Jakob Jensen</i>	<i>Sumer Bartug Dilgen</i>
15:20-15:40	1288	Discontinuous Petrov-Galerkin methods for topology optimization	<i>Anton Evgrafov</i>	<i>Anton Evgrafov</i>
15:40-16:00	1002	A generalized SNC-BESO method for multi-objective topology optimization	<i>David Jordan Munk, Timoleon Kipouros, Gareth Vio</i>	<i>David Jordan Munk</i>

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Tuesday

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16:15 h – 17:55 h

ROOM MA	TOPIC DO Session 13	Design Optimization and Inverse Problems	Chair: <i>Anton Evgrafov</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1160	Design of finite size optical cavities using topology optimization	Fengwen Wang, Rasmus Ellebæk Christiansen, Ole Sigmund	Fengwen Wang
16:35-16:55	1035	Integrated multicomponent topology optimization of optomechanical systems	Stijn Koppen, Max van der Kolk, Floris van Kempen, Jan de Vreugd, Matthijs Langelaar	Stijn Koppen
16:55-17:15	1016	Computational optimization tools for material design of elastic problems using inverse homogenization	Juan Manuel Podesta, Carlos Méndez, Sebastián Toro, Alfredo Huespe, Javier Oliver	Juan Manuel Podesta
17:15-17:35	1113	Investigation of initial design influence in topology optimization	Jimmy van Schoubroeck, Matthijs Langelaar, Deepak Gupta	Jimmy van Schoubroeck
17:35-17:55	1109	A comparative study on the aerodynamic model fidelity effects in preliminary aircraft design optimization	J. Lobo do Vale, N. Sousa, M. Sohst, A. Suleman, S. Banerjee, G. Potter	Afzal Suleman

ROOM 02.1	TOPIC DO Session 14	Design Optimization and Inverse Problems	Chair: <i>Pauli Pedersen</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1131	Acoustic Rainbows - Passive Shaping of Free Space Sound Emission	Rasmus Ellebæk Christiansen, Ole Sigmund, Efren Fernandez-Grande	Rasmus Ellebæk Christiansen
16:35-16:55	1311	Worst geometric imperfections of rods and shells	Piotr Alawdin	Piotr Alawdin
16:55-17:15	1274	Optimization of axially moving layered web	Nikolay Vladimirovich Banichuk, Svetlana Ivanova, Alexander Sinitsyn, Vladislav Afanas'ev	Nikolay Vladimirovich Banichuk
17:15-17:35	1146	Optimization of metal fin distributions in latent heat storages	Bart Peremans, Maarten Blommaert, Martine Baelmans	Bart Peremans
17:35-17:55	1060	The Combination of Three-Dimension Inverse Design and Optimization Methods for Helium Circulator's Impeller Optimization in HTR	Xing Xie, Hong Wang, Zhenlin Li, Baoshan Zhu	Xing Xie

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ROOM 02.2	MS04 Session 01	Optimization of Composite Structures	Chair: <i>Aurelio Araujo</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1028	Design of a composite structure with manufacturing constraints	<i>Samih Zein, David Dumas</i>	<i>Samih Zein</i>
16:35-16:55	1063	Optimization of porous structure effective elastic properties by the fast multipole boundary element method and an artificial immune system	<i>Jacek Ptaszny, Arkadiusz Poteralski</i>	<i>Jacek Ptaszny</i>
16:55-17:15	1187	A gradient-based strategy for the optimization of stiffened composite structures subject to multiple load cases and multiple failure criteria	<i>Farshad Farzan Nasab, H.J.M. Geijsselaers, a. de Boer</i>	<i>Farshad Farzan Nasab</i>
17:15-17:35	1267	Design of low-density rank structures	<i>Yiqiang Wang, Ole Sigmund</i>	<i>Yiqiang Wang</i>
17:35-17:55	1277	Optimisation of fibre-paths in composites produced by additive manufacturing	<i>Rafael T. L. Ferreira, Ian Ashcroft, Shuguang Li, Peng Zhuo</i>	<i>Rafael T. L. Ferreira</i>

ROOM 01.1	TOPIC NO Session 07	Numerical Optimization Techniques	Chair: <i>Carlos C. António</i>	
Time	ID	Title	Authors	Speaker
16:15-16:35	1056	An adaptive feasibility approach for constrained bayesian optimization with application in aircraft design.	<i>Remy Priem, Nathalie Bartoli, Youssef Diouane, Sylvain Dubreuil, Thierry Lefebvre</i>	<i>Remy Priem</i>
16:35-16:55	1079	Hydraulic Design and Optimization of a LNG Hydraulic Turbine Runner	<i>Ning Huang, Zhenlin Li</i>	<i>Ning Huang</i>
16:55-17:15	1066	Applications of iterative non-differentiable optimization to some engineering approximation problems	<i>Stefan M. Stefanov</i>	<i>Stefan M. Stefanov</i>
17:15-17:35	1295	Multi-objective Optimization of Industrial Processes	<i>Dr. Ashish M Gujrathi, Zainab Al Ani, G. Reza Vakili-Nezaad, Talal Al-Wahaibi</i>	<i>Zainab Al Ani</i>
17:35-17:55	1229	Radial Basis Functions Influence in Cors Metodology Applied on Aerodynamic Wing Optimization Problems	<i>Nelson Jose Diaz Gautier, Nelson Manzanares-Filho, Edna Da Silva</i>	<i>Nelson Jose Diaz Gautier</i>

Sessions

Wednesday

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08:40 h – 10:20 h

ROOM MA	TOPIC DO Session 15	Design Optimization and Inverse Problems	Chair: <i>Jairo Faria</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1001	A Study on the Impact of Balancing the Number of Elements of the Clusters on the Uncapacited p-medians Location Problem Using GRASP with Path-relinking	Caroline Nascimento Parajara, Gustavo Barbosa Libotte, Gustavo Platt, Geraldo Galdino	Caroline Nascimento Parajara
09:00-09:20	1074	Uncertainty Quantification and Model Identification in a Bayesian and Metaheuristic Framework	Alexandre Löw, Herbert Martins Gomes	Herbert Martins Gomes
09:20-09:40	1092	Reduced parameter set surface construction from a generic B-spline surfaces	Ivo Marinić-Kragić, Damir Vucina	Ivo Marinić-Kragić
09:40-10:00	1175	On the Potential and Challenges of Neural Style Transfer for Three-dimensional Shape Data	Timo Friedrich, Nikola Aulig, Stefan Menzel	Timo Friedrich
10:00-10:20	1299	Analysis of Slopes Using Elitist Differential Evolution Algorithm	Yagizer Yalcin, Murat Altun, Onur Pekcan	Yagizer Yalcin

ROOM 02.1	MS02 Session 01	New Challenges in Derivative-free Optimization Methods for Engineering Optimization	Chair: <i>José Madeira</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1115	MultiGLODS: Clever Multistart in Multiobjective Directional Direct Search	Ana Luisa Custodio, José Madeira	Ana Luisa Custodio
09:00-09:20	1094	2-Dimensional Outline Shape Representation for Generative Design with Evolutionary Algorithms	Paul Lapok, Alistair Lawson, Ben Paechter	Paul Lapok
09:20-09:40	1057	Optimal Multiobjective Design of a Head Protection Helmet: A Limiting Performance Analysis	Paulo Jorge Pires Moita, Aníbal Valido, José Madeira, João Barradas, Miguel Antunes	Paulo Jorge Pires Moita
09:40-10:00	1072	Adaptive drive for space technology– drive of solar panel	Dana Tulekenova, Konstantin Samson Ivanov	Dana Tulekenova
10:00-10:20	1301	Application of multiobjective optimization based on differences of modal displacements and modal rotations for damage quantification in beams	Jose Viriato Araujo dos Santos, Jose Aguilar Madeira, Hernani Lopes, Pablo Moreno-Garcia	Jose Viriato Araujo dos Santos



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ROOM 02.2	MS04 Session 02	Optimization of Composite Structures	Chair: <i>Niels Pedersen</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1284	Multi-objective memetic algorithm based on learning for sustainable design of FRP composite structures	Carlos Conceição António	Carlos António
09:00-09:20	1285	Optimization of gripper trajectories in automated composite draping	Christian Krogh, Johnny Jakobsen, James Sherwood	Christian Krogh
09:20-09:40	1297	Identification of viscoelastic properties of materials by adjusting frequency response curves	Vítor José da Silva Carvalho, Aurelio Araújo, Cristóvão Manuel Mota Soares	Vitor Carvalho
09:40-10:00	1327	Optimizing hybrid fiber-reinforced composites with more than two fibers for pseudo-ductile behavior	Alexandre Correia, Filipe Leal, Rodrigo Tavares, Fábio Conde	Alexandre Correia
10:00-10:20	1337	Design of Cellular Composites with Metamaterial Microstructures by Topology Optimization of Level Sets	Zhen Jeff Luo, Tao Wu	Zhen Jeff Luo

ROOM 01.1	MS03 Session 01	Optimization Methods in Biomechanics and Biomedical Engineering	Chair: <i>Paulo Fernandes</i>	
Time	ID	Title	Authors	Speaker
08:40-09:00	1220	Synthesis of a Non-Grashof Six-bar Polycentric Knee Prostheses Using an Evolutionary Optimization Algorithm	Cuauhtemoc Morales-Cruz, Edgar Alfredo Portilla-Flores, Rosaura Anaid Suárez-Santillán, Noemi Hernández-Oliva, María Bárbara Calva-Yáñez	Cuauhtemoc Morales-Cruz
09:00-09:20	1282	Application of global optimization methods in multiscale inverse problem solution	Waclaw Kus	Waclaw Kus
09:20-09:40	1329	Inverse dynamics optimization including muscle dynamics – influence on the muscle force sharing problem of the shoulder	Carlos Quental, Margarida Azevedo, Jorge Ambrósio, Sérgio Gonçalves, João Folgado	Carlos Quental

Sessions

Wednesday

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10:35 h – 12:35 h

ROOM MA	TOPIC DO Session 16	Design Optimization and Inverse Problems	Chair: <i>José Herskovits</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1078	Low-fidelity aerostructural optimization of aircraft wings with a simplified wingbox model using OpenAeroStruct	Shamsheer Singh Chauhan, Joaquim R. R. A. Martins	Shamsheer Singh Chauhan
10:55-11:15	1068	Mid-section structure optimization of Oil tanker based on CSR prescriptive analysis	Yuan Wang, Jia-meng Wu	Yuan Wang
11:15-11:35	1120	Modelling and Simulation of a Race-car Frame using Graph-based Design Languages	Manuel Ramsaier, Ralf Stetter, Markus Till, Stephan Rudolph	Markus Till
11:35-11:55	1225	Financial early warning system model based on Neural networks, PSO and SA algorithms	Fatima Zahra Azayite, Said Achhab	Fatima Azayite
11:55-12:15	1009	Evaluation of Residential Water Demand Cross-Correlation in the City of Tripoli	Salah H. A. Saleh	Salah H. A. Saleh
12:15-12:35	1215	The Method of Fundamental Solutions for Pointwise Source Reconstruction associated with Modified Helmholtz Equation	Jairo Rocha de Faria, Thiago José Machado, Romulo Lima, Raul Renner Martins de Sá Sá	Jairo Rocha de Faria

ROOM 02.1	TOPIC DO Session 17	Design Optimization and Inverse Problems	Chair: <i>Tomoyuki Miyashita</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1123	Inverse and Iterative Approaches in Numerical Injection Mold Design	Florian Zwick, Stefanie Elgeti	Florian Zwick
10:55-11:15	1155	Experimental compressor multidisciplinary optimization using different parameterization schemes	Tatiana Buyukli, Igor Egorov, Grigorii Popov, Evgenii Sergeevich Gorlachkin, Anton Salnikov	Tatiana Buyukli
11:15-11:35	1173	Static Aeroelastic Scaling with Non-Similar Flow through Multidisciplinary Optimization	Joan Mas Colomer, Nathalie Bartoli, Thierry Lefebvre, Joseph Mortier	Joan Mas Colomer
11:35-11:55	1286	Identification of immersed obstacles via extended boundary measurements using a game strategy approach	Marwa Ouni, Abderrahmane Habbal, Moez Kallel	Marwa Ouni
11:55-12:15	1317	Bayesian method for the solution of an engineering design inverse problem	Iwona Nowak	Iwona Nowak
12:15-12:35	1186	Penalty-Free Self-adaptive Search Space Reduction Method for Multi-objective Evolutionary Optimization of Water Distribution Networks	Tiku Tanyienow Tanyimboh	Tiku Tanyimboh

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ROOM 02.2	TOPIC IA Session 05	Industrial Applications	Chair: <i>Marco Bortolini</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1031	Study of powders handling with Discrete Element Method: how optimization should and can be used	Riccardo Cenni	Riccardo Cenni
10:55-11:15	1133	Optimal batch creation for bell-type industrial batch annealing furnace with an annealing time prediction model	Adil Han Orta, İskender Kayabasi, Onur Saka, Ali ÖzTÜRK, Kenan Aghayev, Ali Gözay, Taner Göçen, ErdoğaN Özdemir, Eda Kızıltas	Adil Han Orta
11:15-11:35	1140	Reversible Cold Milling Process Time Optimization for an Industrial Application	Kanan Aghayev, Ali ÖzTÜRK, Selim İlker, Adil Han Orta, Kaan Esendağ, Eda Kızıltas	Kanan Aghayev
11:35-11:55	1161	Design and management of renewable smart energy systems: an optimization model and Italian case study	Francesco Pilati, Marco Bortolini, Mauro Gamberi, Alberto Regattieri	Francesco Pilati
11:55-12:15	1132	Optimal Design Of Rotor Blades For An Axial Compressor Using Gradient Based Method	Hyung-Jin Kim, Youn-Jea Kim	Hyung-Jin Kim

ROOM 01.1	MS04 Session 03	Optimization of Composite Structures	Chair: <i>Rasmus Christiansen</i>	
Time	ID	Title	Authors	Speaker
10:35-10:55	1086	Simultaneous optimization of actuators' placements, control parameters and structural topology of piezoelectric composite structures for static shape control	Kaike Yang, Jihong Zhu, Weihong Zhang	Kaike Yang
10:55-11:15	1205	Reliability-Based Design Optimization of a Wind Turbine Blade Using an Efficient Approach	Abdolrasoul Sohouli, Afzal Suleman	A. Sohouli
11:15-11:35	1246	Finite element simulation and topology optimization of bioinspired structures under low-velocity impact	Francisco Javier Ramírez-Gil, Esteban Foronda, Wilfredo Montealegre	Esteban Foronda
11:35-11:55	1270	CFRP layup optimisation to reduce resulting distortions of RTM-produced hybrid steel-CFRP plates	Stefan Scheiblhofer	Stefan Scheiblhofer
11:55-12:15	1264	Optimization of Unidirectional Hybrid Polymer Composites using a Spring Element Model	F. Conde, P. Coelho, R. Tavares, J. Guedes, H. Rodrigues, P. Camanho	Fábio Conde
12:15-12:35	1321	Structural analysis and optimization of a UAV wing	Virgínia Infante, João Ferreira, Diogo Vicente, Jose Aguilar Madeira	João Ferreira

Sessions

Wednesday

September 19, 2018

14:00 h – 16:00 h

ROOM MA	TOPIC DO Session 18	Design Optimization and Inverse Problems	Chair: Erdem Acar	
Time	ID	Title	Authors	Speaker
14:00-14:20	1099	3D Topology Optimization with h-adaptive refinement based on the Cartesian Grids Finite Element Method (cgFEM)	David Muñoz Pellicer, Juan J. Ródenas, Enrique Nadal, José Albelda	David Muñoz Pellicer
14:20-14:40	1101	Topology Optimization for Adsorbed System with condensed PCM Bodies	Diego Silva Prado, Emilio Carlos Nelli Silva	Diego Silva Prado
14:40-15:00	1343	Optimized design of lattice cores with improved buckling strength for additive manufacturing	Lei Zhang	Lei Zhang
15:00-15:20	1309	Topology Optimization for Dynamic Scaling Application Using a Gradient-based Optimization Approach	Éder Luiz Oliveira, Frederico Afonso, Abdolrasoul Sohouli, Roberto Gil Annes Silva Silva, Afzal Suleman	Éder Luiz Oliveira
15:20-15:40	1184	Designing elastomeric 3D printed architectures with a mechanical reduced order model	T. Weisgraber, W. Small, J. Lenhardt, C. Spadaccini, R. Maxwell, E. Duoss, Thomas Wilson	Todd H Weisgraber
15:40-16:00	1252	Multi-fidelity Approaches for Crashworthiness Optimization	Fabian Duddeck	Fabian Duddeck

ROOM 02.1	Topic DO Session 19	Design Optimization and Inverse Problems	Chair: Ana Custódio	
Time	ID	Title	Authors	Speaker
14:00-14:20	1182	Fluid Diodes Design in Pulsating Heat Pipes using Topology Optimization	Bruno Caldas de Souza, Emílio Carlos Nelli Silva	Bruno Caldas de Souza
14:20-14:40	1228	Truss lattice design under dynamic loads with adaptive time stepping.	M. Troya, D.Tortorelli	M. Troya
14:40-15:00	1196	Stochastic topology optimization: comparing polynomial chaos approaches to direct sparse quadrature	G. Oxberry, A.Barker, W.Jonathan, M.Stowell, Y.Chi, D.White, D.Tortorelli	Geoffrey Malcolm Oxberry
15:00-15:20	1344	Homogenized convective heat transfer: analytical analysis and inverse homogenization	Paulo Valentim Francisco, Luis Oliveira Faria	Paulo Francisco
15:20-15:40	1342	Optimal location of piezoelectric sensors and actuators for noise reduction in sandwich panels	Aurelio Araujo, Jose Aguilar Madeira, Filipa Moleiro	Aurelio Araujo
15:40-16:00	1283	Optimum Design of Parking-Lots with Multiple Vehicle Types, Parking Fees and Service Classes	P. Chakroborty, P.Sharma	P. Chakroborty



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ROOM 02.2	TOPIC IA Session 06	Industrial Applications	Chair: <i>João Folgado</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1010	Distribution of workload in IMA systems by solving a modified multiple knapsack problem	Vasily Balashov, Ekaterina Antipina	Vasily Balashov
14:20-14:40	1287	An Optimization Approach to Generate Accurate and Efficient Lookup Tables for Engineering Applications	Hugo Magalhaes, Filipe Marques, Binbin Liu, João Pombo, Paulo Flores, Jorge Ambrósio, Stefano Bruni	Hugo Magalhães
14:40-15:00	1262	Applying the Modified Cuckoo Search to the customisation of an industrial pre-mixer	Jennifer Sarah Thompson	Jennifer Sarah Thompson
15:00-15:20	1278	Assessment of standardization of compatibility using Genetic Algorithms	Luis Sousa, Diogo Rechena, Virginia Infante	Diogo Rechena
15:20-15:40	1075	Bayesian optimal experimental design for parameter identification in mechanised tunnelling	Raoul Hoelter, Elham Mahmoudi, Arash Lavasan	Raoul Hoelter

ROOM 01.1	TOPIC NO Session 08	Numerical Optimization Techniques	Chair: <i>Rafael Ferreira</i>	
Time	ID	Title	Authors	Speaker
14:00-14:20	1341	Topology Optimization of Continuum Structures using Continuous Material Distribution and Mixed Finite Element Models	Haitao Ma	Haitao Ma
14:20-14:40	1093	Stress Constrained Optimization of Plates with Nonlinear Material Behaviour	Bence Balogh, Matteo Bruggi, Janos Logo	Bence Balogh
14:40-15:00	1100	Algorithmic System Design of Thermofluid Systems	Jonas Benjamin Weber, Ulf Lorenz	Jonas Benjamin Weber
15:00-15:20	1121	Optimization of Polyacrylamide Based Multicomponent Hydrogels synthesis using a neuro-evolutionary strategy	Elena Niculina Dragoi, Gabriel Dan Suditu, Silvia Curteanu	Elena Niculina Dragoi
15:20-15:40	1096	Optimal search strategies for rescue drones based on swarm behaviour with different ethics	Alexander Struck, Ronny Hartanto, Florian Roesner, Clein Alexander Sarmiento Castrillón	Alexander Struck
15:40-16:00	1204	Improving Coordination in Supply Chain Using Artificial Neural Networks and Multi-Agent Approach	Halima Bousqaoui, Ilham Slimani, Said Achhab	Halima Bousqaoui



Poster Session

Posters will be displayed on Monday and will be in exhibition during the entire conference

HALL	ID	POSTER SESSION		
		Title	Authors	Speaker
	1018	Optimal Design of Adaptive Toothed Variator (CVT)	Konstantin Samson Ivanov	Dana Tulekenova
	1077	Transition optimization of a tilt-wing electric vertical takeoff and landing aircraft	S. S. Chauhan, J.Hwang, J.Martins	S. S. Chauhan
	1087	Multiobjective Optimization of composite materials for continuous fiber orientation	Pedro Bührer Santana, Ewerton Grotti, Marcos Daniel de Freitas Awruch, Herbert Martins Gomes	Herbert Martins Gomes
	1088	Multiobjective Optimization of vehicle suspension for road irregularities by MOQPSO	Ewerton Grotti, Marcos Daniel de Freitas Awruch, Herbert Martins Gomes, Artur Dieguez Backes	Ewerton Grotti
	1124	Topology optimization using the hybrid finite element-wave based method for structural-acoustic problems	Seongyeol Goo, Semyung Wang	Seongyeol Goo
	1149	Full-field multi-fidelity surrogate assisted optimization and their application to the optimal design of turbomachines	Tariq Benamara, Hanane Khatouri, Caroline Sainvitu, Charlotte Beauthier, Piotr Breitkopf	Charlotte Beauthier
	1150	Using multicriterion optimization methods to optimize the 3D shape of axial compressor blades	Grigorii Popov, Evgenii Sergeevich Gorjachkin, Yulia Novikova, Daria Kolmakova, Andrei Volkov	Novikova Yulia
	1256	A Feasible Direction Algorithm for the Generalized Nash Equilibrium Problem	Jose Herskovits, Carolina Effio, Jean-Rodolphe Roche	José Herskovits

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