
Report on the International Workshop on the Complex Turbulent Flows Tangier-Morocco, November 27-28, 2017

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1 Introduction

In the framework of scientific events, the Polydisciplinary Faculty of Larache and the University Abdelmalek Essaadi in collaboration with the ERCOFTAC organized the international Workshop on the Complex Turbulent Flows held in Tangier, Morocco from the 27th to 28th of November 2017. The object of the workshop was to deal with issues of turbulent and complex flows, especially with the planet's sudden climate change in oceans and atmosphere, which have highly negative impacts on the sustainable development and management of resources. The workshop brought together experimentalists, numericists and theoreticians from around the world with experts in turbulent flow simulations, computational mathematics, and high-performance computing. Participants presented and discussed recent advances in the field of turbulence and topics related to the study of chaos, nonlinear dynamical systems of turbulent flows, and their application to atmospheric and oceanic flows. Topics focused on different aspects of both fundamental and applied turbulence research such as: Transfer of Heat and Mass, Mixing and Dispersion, Turbulence Modeling, Simulation (DNS and LES), Mathematical Methods, Vortex Dynamics and Structure Formation, Coherent Structures, Scaling Laws and Intermittency, Convection, Turbulent Boundary Layers, to name only a few.

2 Participants

The workshop attracted a total of 86 scientists from 25 countries, including 35 PhD students as shown in table 1. Most participants came from European universities or research institutes.

ALGERIE	03	BELGUIM	02
BRESIL	01	CANADA	02
CHILE	01	DENMARK	01
EGYPT	01	FRANCE	09
GERMANY	02	INDIA	01
ITALY	03	MOROCCO	26
NETHERLAND	02	POLAND	01
REPUBLIC CZECH	01	RUSSIA	03
SINGAPORE	01	SPAIN	09
SWEDEN	01	SWISS	01
TUNISIE	08	UK	05
USA	02		

Table 1: The distribution of participants

All submitted an abstract and presented their results. A total of 89 abstracts were accepted out of 126 submitted, representing 25 different countries and covering experimental, theoretical and numerical aspects of turbulent flows. Of these abstracts, 54 were accepted for oral presentations and 35 were accepted for poster presentations. All abstracts were

reviewed anonymously based on scientific strength, methodology and the data provided, in addition to the novelty and originality of the findings.



Figure 1: Workshop participants shortly after the opening ceremony

3 Program

The workshop was formally inaugurated in the conference room of the Presidency of Tangier Region by Mrs. Assia Bouzekri, Vice President of Regional Council Tangier-Tétouan-Al Hoceima. Prof. Houdaifa Ameziane, President of the Abdelmalek Essaadi University. Prof. Bouchta El Mounni, Dean of the Polydisciplinary Faculty of Larache. Prof. Ahmed Hammouch, Head of the Department for Scientific and Technical Affairs of CNRST. Dr. Koen Hillewaert, Representative of the ERCOFTAC. The inaugural session was chaired by Prof. José Manuel Redondo, member of the Workshop Scientific Committee.



Figure 2: The inauguration ceremony

The workshop was divided in 2 parallel work-

ing sessions alternated by joint discussion sessions. The program consisted of 16 invited talks of 25 minutes each, 38 oral presentations of 15 minutes each and 35 poster presentations. In addition, many social events (conference dinner and visit to Assilah) allowed for informal exchanges between participants. Talks were given by scientists from more than 52 universities and research institutes worldwide. Among the speakers were many prominent experimental, theoretical and numerical researches of turbulent flows. Poster sessions were held during coffee breaks in the exhibition hall. More than 90% of the participants in the poster sessions were Ph.D. students who had the opportunity to present their current research and which prompted many fruitful discussions and interacts with their peers as well as scientists. The workshop also enabled young scientists to meet other young scientists for the first time and help make attending their first meeting somewhat less daunting than would otherwise be the case. The organization was very compact with the scientists accommodated in the same hotel fostering exchange and discussion between the participants outside the meeting rooms. Additionally, time was left for individual interactions amongst participants during the social events.

4 Proceeding

Detailed descriptions of the workshop program and the accepted abstracts, both oral or as poster presentations, can be found in the proceeding of the workshop. Links to the abstracts can also be found on the workshop web site: <http://www.turbulence.ma/proceedings.html>.

5 Young scientist awards

In order to assist young scientists and researchers to dedicate themselves to the field of turbulence, the Organizing Committee decided to award four prizes to the young scientists at the workshop, two for the

best oral presentation and two for the best poster presentation. The competition saw the participation of 38 young scientists from 17 universities.



Figure 3: Oral presentation session (room 1)



Figure 4: Oral presentation session (room 2)

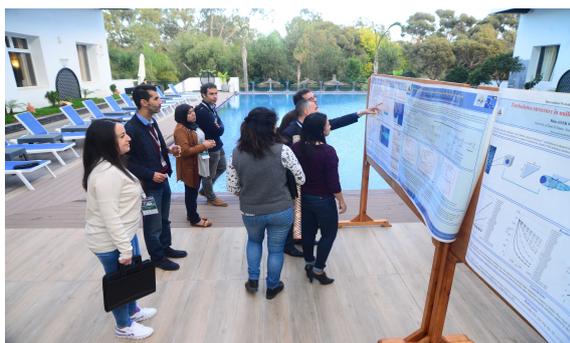


Figure 5: Poster presentation session

Six young scientists competed for the best oral presentations prizes and thirty-two competed for the best poster presentations prizes. Presentations were judged by the Selection Committee in terms of the scientific content, innovation, quality and clarity

of the presentation. Owing to the very high quality of these entries, the Selection Committee had a very hard time selecting winners. Awards were decided at the end of the workshop and winners were informed by mail and announced on the workshop web site. For the best oral presentation, the first prize went to Maurits H. Silvis (University of Groningen, Netherlands) and the second prize went to Harry Stott (University of Bristol, United Kingdom). For the best poster presentations, the first prize went to Hamzah Bakhti (Mohammed V University, Morocco) and the second prize went to Maroua Edouia (University of Monastir, Tunisia). The two first oral and poster prize winners will receive 3500 Dhs and the two second oral and poster prize winners will receive 2500 Dhs. These awards will encourage the young scientists to further improve the overall quality of presentations and most importantly, will encourage new researchers to aim for the highest professional standards.

6 Creation of North Africa Pilot Center

On the last day of the workshop a meeting of ERCOFTAC members was held with the participation of representatives of Moroccan, Algerian, Tunisian and Egyptians universities with the aim of discussing the creation of North Africa Pilot Center. All participants insisted on the necessity to strengthen the North-South scientific cooperation, especially between European and North African research institutes. Pursuant to this very fruitful and very effective meeting, it was accorded that the creation of the Pilot Center should proceed with the objective of coordinating research in Flow, Turbulence, and Combustion in North Africa and, at the same time, establishing links to other Pilot Centers. The project of the Pilot Center will be presented by Prof. Otman Ben Mahjoub at the ERCOFTAC Spring Festival 2018 to be held from the 26th to 27th of April 2018 in Thessaloniki, Greece and it will be housed in the Polydisciplinary Faculty of Larache, Morocco.

7 Conclusions

The International Workshop on the Complex Turbulent Flows was conducted in an informal and friendly atmosphere. This promoted a very intense and productive meeting, with many fruitful discussions of new and old concepts and applications in the field. The workshop provided an excellent opportunity to meet new scientists and strengthen ties with colleagues. Overall it led to participants making numerous contacts and connections with exchanges of experiences and ideas. Putting one's own results into a broader perspective was conceived as helpful and important. Many pertinent topics were discussed and deeper information was provided. A renewed sense of togetherness emerged from these two days, which might well be the basis for further common activities and projects. On the other hand, the workshop was the opportunity to discuss and to approve the creation of ERCOFTAC North Africa Pilot Center, the first in Africa and in the Arab world, aimed to promote and strengthen the North-South scientific cooperation and transfer of technology in the field of flow, turbulence and combustion, which is an excellent way to respond to challenges at both the global level and in the partner countries. The arrangements for the workshop and the hospitality and commitment of the Organizing Committee

was highly appreciated by all participants. Additionally, the participants evaluated the scientific aspects of the workshop highly in terms of content and methodology. Overall, the workshop may thus be judged as resoundingly successful.

8 Acknowledgement

This workshop would not have been possible without the financial support of the ERCOFTAC, the CNRST, the Regional Council Tangier-Tétouan-Al Hoceima, and the Abdelmalek Essaadi University. We express our gratitude to all contributors for the processes that led to the successful workshop and the compilation of this report. First and foremost, we thank the attendees for taking time to attend the workshop. We are particularly very grateful to the Scientific Committee members for their dedication of improving the scientific quality of the workshop and to all of participants who agreed to be interactive session chairs. Last but not least, we would like especially to express our deep gratitude to Prof. Philippe Fraunie and Prof. José Manuel Redondo for their valuable and constructive suggestions during the preparation and development of this workshop and also to Prof. Tim Granata for his review of this report.



Figure 6: Workshop participants in the closing ceremony

APPENDIX A: WORKSHOP PROGRAM

SUNDAY, 26 NOVEMBER 2017	
17:00 - 20:00	REGISTRATION GOLDEN TULIP ANDALUCIA GOLF TANGIER HOTEL (TANGIER)
MONDAY, 27 NOVEMBER 2017	
08:00 - 09:00	REGISTRATION (HALL-PRESIDENCY OF TANGIER REGION)
09:00 - 10:00	<p>OPENING WORKSHOP (CONFERENCE ROOM - PRESIDENCY OF TANGIER REGION)</p> <ul style="list-style-type: none"> • Mrs. Assia Bouzekri, Vice President of Regional Council Tangier-Tétouan-Al Hoceima • Mr. Houdaifa Ameziane, President of the Abdelmalek Essaadi University • Mr. Bouchta El Mounni, Dean of the Polydisciplinary Faculty of Larache • Mr. Ahmed Hammouch, Head of the Department for Scientific and Technical Affairs of CNRST • Mr. Koen Hillewaert, Representative of the ERCOFTAC
10:00 - 10:50	<p>Conference Room Chair: Prof. José Manuel Redondo (Polytechnic University of Catalonia, Spain)</p>
10:00 - 10:25	<p>Plenary Session $n^{\circ}1$: DNS OF TURBULENT FLOW IN DUCTS WITH COMPLEX SHAPE. Prof. Paolo Orlandi (Sapienza University of Rome, Italy)</p>
10:25 - 10:50	<p>Plenary Session $n^{\circ}2$: SURFACE PATTERNS OF THIN LIQUID FILMS WITH A NON-VANISHING REYNOLDS NUMBER. Prof. Michael Bestehorn (Brandenburg University of Technology Cottbus - Senftenberg, Germany)</p>
10:50 - 11:20	COFFEE BREAK (HALL-PRESIDENCY OF TANGIER REGION)
11:20 - 12:10	<p>Conference Room Chair: Prof. Philippe Fraunié (University of Toulon, France)</p>
11:20 - 11:45	<p>Plenary Session $n^{\circ}3$: FLOW OVER SHALLOW DIMPLE ARRAYS. Prof. Boo Cheong Khoo (University of Singapore, Singapore)</p>
11:45 - 12:10	<p>Plenary Session $n^{\circ}4$: HOW MUCH EDDY DISSIPATION IS NEEDED TO COUNTER-BALANCE THE NONLINEAR PRODUCTION OF SMALL, UNRESOLVED SCALES IN A LARGE-EDDY SIMULATION OF TURBULENCE? Prof. Roel Verstappen (University of Groningen, Netherlands)</p>

12:30 - 14:00	LUNCH (LUNCH HALL)	
14:00 - 15:35	T01 (Room 1) Chair: Prof. Michael V. Kurgansky (Russian Academy of Sciences, Russia)	T02 (Room 2) Chair: Prof. Abdelaziz Salhi (Tunis El Manar University, Tunisia)
14:00 - 14:25	Plenary Session $n^{\circ}5$: ON THE SPACE-TIME MESHLESS COLLOCATION METHOD USING RADIAL BASIS FUNCTIONS Prof. Ahmed Naji (Abdelmalek Essaadi University, Morocco)	Plenary Session $n^{\circ}6$: LEVY WALKS AND ANOMALOUS METAPOPOPULATION TRANSPORT ON SCALE-FREE NETWORK Prof. Sergei Fedotov (University of Manchester, United Kingdom)
14:25 - 14:40	THE EFFECT OF STRATIFICATION ON FULLY DEVELOPED TURBULENT CONVECTION Prof. Krzysztof A. Mizerski (Polish Academy of Sciences, Poland)	COHERENT STRUCTURES IN COASTAL FLOWS Prof. Philippe Fraunié (University of Toulon, France)
14:40 - 15:05	LARGE-SCALE MOTIONS IN TRANSITIONAL SHEAR FLOWS Prof. Yohann Duguet (University of Paris-Saclay, France)	TOPOLOGY OF RAYLEIGH-TAYLOR INDUCED MIXING Prof. José Manuel Redondo (Polytechnic University of Catalonia, Spain)
15:05 - 15:20	INTERACTION BETWEEN TURBULENCE AND MOMENTUM INTERFACIAL TRANSFER IN DISPERSED TWO-PHASE FLOW Prof. Ghazi Bellakhal (Tunis El Manar University, Tunisia)	INTERACTION FLOCCULATION-TURBULENCE - MODEL OF PULP OF PAPER FLOW IN PIPES Prof. Salaheddine Skali-Lami (Lorraine University, France)
15:20 - 15:35	A NEW SUBGRID CHARACTERISTIC LENGTH FOR LARGE-EDDY SIMULATION Dr. Xavier Trias (Polytechnic University of Catalonia, Spain)	ON TURBULENCE MODELLING: EDDY VISCOSITY TURBULENCE MODELS VERSUS MULTIFRACTAL STOCHASTIC SIMULATIONS Prof. François G. Schmitt (University of Lille, France)
15:35 - 16:00	COFFEE BREAK - POSTER SESSION (HALL 1) Chair: Prof. Carlos Peña-Monferrer (Jaume I University, Spain)	
16:00 - 17:10	T03 (Room 1) Chair: Prof. Stefan Wallin (KTH Mechanics, Sweden)	T04 (Room 2) Chair: Prof. François G. Schmitt (University of Lille, France)
16:00 - 16:25	Plenary Session $n^{\circ}7$: ROTATING SHEAR FLOW: FROM THE ROTATING CHANNEL TO GEOPHYSICS AND ASTROPHYSICS Prof. Claude Cambon (Central School of Lyon, France)	Plenary Session $n^{\circ}8$: MAKING MEANING FROM MOLECULAR MIXING: MECHANISMS, MODELS AND MEASUREMENTS Prof. Andrew Lawrie (University of Bristol, United Kingdom)

16:25 - 16:40	EFFECTS OF A MAGNETIC FIELD ON UNSTABLE STRATIFICATION Prof. Abdelaziz Salhi (Tunis El Manar University, Tunisia)	IMPLEMENTATION OF SOFT BOUNDARY CONDITION IN STRATIFIED FLOWS MODELS Prof. Tomas Bodnar (Czech Technical University in Prague, Czech Republic)
16:40 - 16:55	AIRFLOW AND PARTICLE DEPOSITION IN LARGE AIRWAY UNDER SNFF CONDITION Dr. Hadrien Calmet (Barcelona Supercomputing Center, Spain)	HOMOGENEITY AND ISOTROPY OF THE TAYLOR-GREEN VORTEX: THE FATE OF THE KOLMOGOROV AND YAGLOM RELATIONS Prof. Alain Noullez (Observatoire de la Côte d'Azur, France)
16:55 - 17:10	INSTABILITY OF INTERNAL GRAVITY WAVES PROPAGATING AT SMALL BUT FINITE ANGLES TO THE VERTICAL AND THE GENERATION OF TURBULENCE IN STRONGLY STABLE STRATIFIED MEDIA Prof. Michael V. Kurgansky (Russian Academy of Sciences, Russia)	STOCHASTIC CHAOS IN A TURBULENT SWIRLING FLOW Prof. Davide Faranda (University of Paris-Saclay, France)
17:30 - 20:00	Guided walking tour of historical Tangier. Visit of the old city of Tangier. Departure from the ANDALUCIA HOTEL. The end of the tour will take you to the "HAMADI RESTAURANT" where the gala of the workshop will take place.	
20:30 - 22:30	GALA DINNER (HAMADI RESTAURANT)	
TUESDAY, 28 NOVEMBER 2017		
08:30 - 09:55	T05 (Room 1) Chair: Dr. Koen Hillewaert (Cenaero, Belgium)	T06 (Room 2) Chair: Prof. Tomas Bodnar (Czech Technical University in Prague, Czech Republic)
08:30 - 08:55	Plenary Session <i>n</i> °9: NUMERICAL INVESTIGATION OF BAROCLINIC VORTICITY GENERATION IN MULTIPHASE FLOWS Prof. Andrzej F. Nowakowski (University of Sheffield, United Kingdom)	Plenary Session <i>n</i> °10: APPLICATION OF PROPER ORTHOGONAL DECOMPOSITION IN FLUID MECHANICS AND HEAT TRANSFER PROBLEMS Prof. Sanjeev Sanghi (Indian Institute of Technology, India)
08:55 - 09:10	TURBULENCE STRUCTURE OF A ROUND VERTICAL BUOYANT JET IN CROSS FLOW Prof. Mouldi Ben Meftah (Polytechnic University of Bari, Italy)	POLYMER EFFECTS ON THE DEVELOPMENT AND BURSTING OF TURBULENT VORTICES: IMPLICATION ON HIGH-EXTENT DRAG REDUCTION Prof. Li Xi (McMaster University, Canada)

09:10 - 09:25	ALGEBRAIC REYNOLDS STRESS MODELING EXTENDED FOR ATMOSPHERIC BOUNDARY LAYERS Prof. Stefan Wallin (KTH Mechanics, Sweden)	TWO FLUID MODELS FOR TURBULENT BUBBLY FLOWS Prof. Jamel Chahed (National Engineering School of Tunis, Tunisia)
09:25 - 09:40	MULTIPLICATIVE CHAOS AND NON-MARKOVIAN MODELING OF LAGRANGIAN TURBULENCE Prof. Luca Moriconi (Federal University of Rio de Janeiro, Brazil)	A NEW TURBULENCE MODEL FOR LARGE-EDDY SIMULATIONS OF ROTATING FLOWS Dr. Maurits H. Silvis (University of Groningen, Netherlands)
09:40 - 09:55	SUBHARMONIC INSTABILITIES ON PULSED TAYLOR-COUETTE FLOW Dr. Mehdi Riahi (University Hassan II, Morocco)	GENERATION OF SUB (SUPER)-ROTATION AND JET FLOWS FROM SMALL-SCALE QUASITWODIMENSIONAL VORTICES IN LABORATORY EXPERIMENTS Prof. Otto G. Chkhetiani (Russian Academy of Sciences, Russia)
09:55 - 10:25	COFFEE BREAK - POSTER SESSION (HALL 1) Chair: Prof. Maher Ben Chiekh (University of Monastir, Tunisia)	
10:25 - 12:45	T07 (Room 1) Chair: Prof. Luca Moriconi (Federal University of Rio de Janeiro, Brazil)	T08 (Room 2) Chair: Prof. Li Xi (McMaster University, Canada)
10:25 - 10:50	Plenary Session $n^{\circ}11$: AEROACOUSTICS OF COMPLEX FLOWS Prof. Stephane Moreau (University of Sherbrooke, Canada)	Plenary Session $n^{\circ}12$: TURBULENCE IN ROTATING FLUIDS AND THE NASTROM& GAGE SPECTRA Prof. Boris Galperin (University of South Florida, USA)
10:50 - 11:05	EXPERIMENTAL INVESTIGATIONS OF FLOW CONTROL USING SYNTHETIC JET ACTUATION Prof. Maher Ben Chiekh (University of Monastir, Tunisia)	SIMULATION OF VISCOUS INCOMPRESSIBLE FLOW THROUGH A CONDUIT WITH ISOTHERMAL WALLS Prof. Salim Bennoud (University of Saad Dahlab, Algeria)
11:05 - 11:20	CAPTURING INERTIAL PARTICLE TRANSPORT IN TURBULENT FLOWS Dr. Harry Stott (University of Bristol, United Kingdom)	CONNECTING MACRO-SCALES AND MICRO-SCALES IN SPACE PLASMAS: IS TURBULENCE HEATING THE SOLAR WIND? Prof. Luca Sorriso-Valvo (University of Calabria, Italy)

11:20 - 11:35	A COARSE GRID PROJECTION MULTI-SCALE METHOD FOR TURBULENT GEOPHYSICAL FLOWS Prof. Anne E. Staples (Virginia Tech, USA)	NUMERICAL SIMULATIONS OF TURBULENT TWO-PHASE FLOW IN A 3-D BUBBLE COLUMN Prof. Youssef Stiriba (Rovira i Virgili University, Spain)
11:35 - 12:45	T09 (Room 1) Chair: Prof. Anne E. Staples (Virginia Tech, USA)	T10 (Room 2) Chair: Prof. Krzysztof A. Mizerski (Polish Academy of Sciences, Poland)
11:35 - 12:00	Plenary Session <i>n</i> ^o 13: TURBULENCE, IRRADIANCE AND PHYTOPLANKTON DYNAMICS Prof. Tim Granata (University of Applied Science & Art, Switzerland)	Plenary Session <i>n</i> ^o 14: TURBULENT FLOWS OVER POROUS WALLS Prof. Alfredo Pinelli (University of London, United Kingdom)
12:00 - 12:15	ROUGHNESS TO PROMOTE SEDIMENT TRANSPORT. APPLICATION TO THE BUENAVENTURA BAY. (COLOMBIA) Prof. Allen Bateman (Polytechnic University of Catalonia, Spain)	STATE OF THE ART IN LARGE EDDY SIMULATION OF WIND TURBINE WAKES Prof. Hamid Sarlak (Technical University of Denmark, Denmark)
12:15 - 12:30	NUMERICAL OF SEWAGE EFFLUENT DISPERSION INTO THE SEA AND EXPERIMENTAL STUDY OF COASTAL PROCESS Dr. Aicha Belcaid (Abdelmalek Essaadi University, Morocco)	PERFORMANCE OF EXPERIMENT OF SIERPINSKI PLANE AND SPARSE FRACTAL TURBULENCE GRIDS Dr. Jackson Tellez-Alvarez (Polytechnic University of Catalonia, Spain)
12:30 - 12:45	NUMERICAL INVESTIGATION OF BUBBLE FORMATION, VELOCITY, PATH AND WAKE USING OPEN FOAM Prof. Carlos Peña-Monferrer (Jaume I University, Spain)	ACOUSTICS OF SHOCK VORTEX INTERACTIONS IN JET FLOWS Prof. Jörn Sesterhenn (Technical University of Berlin, Germany)
12:45 - 14:00	LUNCH (LUNCH HALL)	
14:00 - 14:55	T11 (Room 1) Chair: Prof. Jamel Chahed (National Engineering School of Tunis, Tunisia)	T12 (Room 2) Chair: Prof. Mouldi Ben Meftah (Polytechnic University of Bari, Italy)
14:00 - 14:25	Plenary Session <i>n</i> ^o 15: EFFECT OF MIXING ON COMBUSTION OF TURBULENT REACTING FLOW Prof. Mohy Mansour (The American University in Cairo, Egypt)	Plenary Session <i>n</i> ^o 16: ESTIMATION OF TURBULENT FLOW FIELDS FROM NON-TIME RESOLVED DATA WITH EXTENDED POD Prof. Stefano Discetti (Carlos III University of Madrid, Spain)

14:25 - 14:40	DEVELOPMENT OF THE ASYMMETRY OF THE ORGANIZED MESOSCALE CIRCULATION IN THE ATMOSPHERIC BOUNDARY LAYER Dr. Natalia V. Vazaeva (Russian Academy of Sciences, Russia)	HIGH ORDER DG FOR LES OF TURBOMACHINERY FLOWS Dr. Koen Hillewaert (Cenaero, Belgium)
14:40 - 14:55	INTERMITTENCY IN TURBULENCE GENERATED BY SPARSE 3D MULTI-SCALE GRID Prof. Otman Ben Mahjoub (Abdelmalek Essaadi University, Morocco)	NUMERICAL APPROXIMATION FOR NON-ISOTHERMAL FLUID FLOWS WITH TRESCA'S FRICTION AND CATTANEO'S HEAT LAW Prof. Imane Boussetouan (Ecole Supérieure des Technologies Industrielles, Algeria)
14:55 - 15:30	COFFEE BREAK - (HALL 1) DELIVERY AWARDS (best PhD student oral and poster presentation)	
15:30 - 17:00	ERCOFTAC meeting (only for ERCOFTAC members)	
15:45 - 19:30	Guided walking tour of historical Assilah (30Km from Tangier). Visit of the old city of Assilah.	
20:30 - 22:00	DINNER (LUNCH HALL)	

APPENDIX B: WORKSHOP PARTICIPANTS

Driss Achemlal Mohamed I University Morocco	Narjisse Amahjour Abdelmalek Essaadi University Morocco
Ridouan Amattouch Abdelmalek Essaadi University Morocco	Kamal Amghar Mohamed I University Morocco
Aroua Aouadi University of Tunis El Manar Tunisia	Ismail Arroub University Sultan Moulay Sliman Morocco
Chahrazade Bahbah MINES ParisTech France	Hamzah Bakhti Mohammed V University Morocco
Allen Bateman Polytechnic University of Catalonia Spain	Aicha Belcaid Abdelmalek Essaadi University Morocco
Ghazi Bellakhal Tunis El Manar University Tunisia	Hadjer Bellamri University of Amar Telidji Algeria
Maher Ben Chiekh University of Monastir Tunisia	Otman Ben Mahjoub Abdelmalek Essaadi University Morocco
Mouldi Ben Meftah Polytechnic University of Bari Italy	Driss Achemlal Mohamed I University Morocco
Narjisse Amahjour Abdelmalek Essaadi University Morocco	Ridouan Amattouch Abdelmalek Essaadi University Morocco
Kamal Amghar Mohamed I University Morocco	Aroua Aouadi University of Tunis El Manar Tunisia
Ismail Arroub University Sultan Moulay Sliman Morocco	Chahrazade Bahbah MINES ParisTech France
Hamzah Bakhti Mohammed V University Morocco	Allen Bateman Polytechnic University of Catalonia Spain
Aicha Belcaid Abdelmalek Essaadi University Morocco	Ghazi Bellakhal Tunis El Manar University Tunisia

Hadjer Bellamri University of Amar Telidji Algeria	Maher Ben Chiekh University of Monastir Tunisia
Otman Ben Mahjoub Abdelmalek Essaadi University Morocco	Mouldi Ben Meftah Polytechnic University of Bari Italy
Salim Bennoud University of Saad Dahlab Algeria	Jaouad Benzya University Hassan II Morocco
Michael Bestehorn Brandenburg University of Technology Cottbus - Senftenberg Germany	Tomas Bodnar Czech Technical University in Prague Czech Republic
Sara Borji University Hassan II Morocco	Imane Boussetouan Ecole Supérieure des Technologies Industrielles Algeria
Hadrien Calmet Barcelona Supercomputing Center Spain	Claude Cambon Central School of Lyon France
Jamel Chahed National Engineering School of Tunis Tunisia	Otto G. Chkhetiani Russian Academy of Sciences Russia
Boo Cheong Khoo University of Singapore Singapore	Wafa Daldoul MINES ParisTech France
Stefano Discetti Carlos III University of Madrid Spain	Yohann Duguet University of Paris-Saclay France
Maroua Edouia University of Monastir Tunisia	Laila Eljamali University Hassan II Morocco
Amal El Kouche Abdelmalek Essaadi University Morocco	Sanaa El Mouhsine Abdelmalek Essaadi University Morocco
Lahcen El Moutaouakil Cadi Ayyad University Morocco	Youssra El Qasemy Abdelmalek Essaadi University Morocco

<p>Davide Faranda University of Paris-Saclay France</p>	<p>Sergei Fedotov University of Manchester United Kingdom</p>
<p>Cristina Fernandez Polytechnic University of Catalonia Spain</p>	<p>Youness Filali Abdelmalek Essaadi University Morocco</p>
<p>Philippe Fraunié University of Toulon France</p>	<p>Boris Galperin University of South Florida USA</p>
<p>Mokhtar Ghazouani International University of Rabat Morocco</p>	<p>Tim Granata University of Applied Science & Art Switzerland</p>
<p>Mohamed Hayani University of Hassan II Morocco</p>	<p>Koen Hillewaert Cenaero Belgium</p>
<p>Svetlana Karimova University of Liège Belgium</p>	<p>Michael V. Kurgansky Russian Academy of Sciences Russia</p>
<p>Hicham Lamarti Abdelmalek Essaadi University Morocco</p>	<p>Andrew Lawrie University of Bristol United Kingdom</p>
<p>Carolina E. Leyton-Pavez University of Bio Bio Chile</p>	<p>Mohy Mansour The American University in Cairo Egypt</p>
<p>Soufiya Mizaniet University Hassan II Morocco</p>	<p>Krzysztof A. Mizerski Polish Academy of Sciences Poland</p>
<p>Stephane Moreau University of Sherbrooke Canada</p>	<p>Luca Moriconi Federal University of Rio de Janeiro Brazil</p>
<p>Hela Ayeb Mrabtini University of Tunis El Manar Tunisia</p>	<p>Ahmed Naji Abdelmalek Essaadi University Morocco</p>
<p>Zakia Ngadi Abdelmalek Essaadi University Morocco</p>	<p>Alain Noullez Observatoire de la Côte d'Azur France</p>
<p>Andrzej F. Nowakowski University of Sheffield United Kingdom</p>	<p>Aziz Ouadoud Abdelmalek Essaadi University Morocco</p>

Mohamed Hatim Ouahabi Abdelmalek Essaadi University Morocco	Karim Oukassou Abdelmalek Essaadi University Morocco
Paolo Orlandi Sapienza University of Rome Italy	Carlos Peña-Monferrer Jaume I University Spain
Alfredo Pinelli University of London United Kingdom	José Manuel Redondo Polytechnic University of Catalonia Spain
Mariem Rezig University of Tunis El Manar Tunisia	Mehdi Riahi University Hassan II Morocco
Abdelaziz Salhi Tunis El Manar University Tunisia	Sanjeev Sanghi Indian Institute of Technology India
Hamid Sarlak Technical University of Denmark Denmark	François G. Schmitt University of Lille France
Jörn Sesterhenn Technical University of Berlin Germany	Maurits H. Silvis University of Groningen Netherlands
Salaheddine Skali-Lami Lorraine University France	Luca Sorriso-Valvo University of Calabria Italy
Anne E. Staples Virginia Tech USA	Youssef Stiriba Rovira i Virgili University Spain
Harry Stott University of Bristol United Kingdom	Jackson Tellez-Alvarez Polytechnic University of Catalonia Spain
Xavier Trias Polytechnic University of Catalonia Spain	Natalia V. Vazaeva Russian Academy of Sciences Russia
Roel Verstappen University of Groningen Netherlands	Abderrahim Wakif University Hassan II Morocco
Stefan Wallin KTH Mechanics Sweden	Li Xi McMaster University Canada
