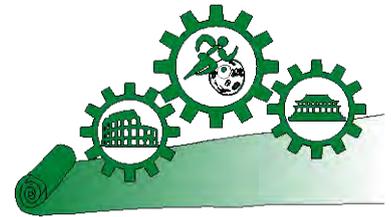




TOR VERGATA
UNIVERSITY OF ROME



BIOMECH 2019

Sino-Italian Workshop on Biomechanics

Rome, July 1-3, 2019



Program

Workshop Chairs

Xiqiao Feng, *Tsinghua University*

Paolo Bisegna, *University of Rome Tor Vergata*

Scientific Committee

Tianjian Lu (co-chair), *Nanjing University of Aeronautics and Astronautics*

Vincenzo Parenti Castelli (co-chair), *University of Bologna*

Gianni Pedrizzetti (co-chair), *University of Trieste*

Wei Yang (co-chair), *Zhejiang University*

Sandra Carillo, *Sapienza University of Rome*

Federica Caselli, *University of Rome Tor Vergata*

Weiqiu Chen, *Zhejiang University*

Alberto Corigliano, *Polytechnic University of Milan*

Marco Donato de Tullio, *Polytechnic University of Bari*

Xiqiao Feng, *Tsinghua University*

Baohua Ji, *Zhejiang University*

Stefano Lenci, *Marche Polytechnic University*

Michele Marino, *Gottfried Wilhelm Leibniz University*

Nicola Sancisi, *University of Bologna*

Giuseppe Vairo, *University of Rome Tor Vergata*

Organizing Committee

Paolo Bisegna (co-chair), *University of Rome Tor Vergata*

Jizeng Wang (co-chair), *Lanzhou University*

Jie Chen, *Chinese Society of Theoretical and Applied Mechanics*

Claudio Intrigila, *University of Rome Tor Vergata*

Baohua Ji, *Zhejiang University*

Nicola A. Nodargi, *University of Rome Tor Vergata*

Yanan Tang, *Chinese Society of Theoretical and Applied Mechanics*

Feng Xu, *Xian Jiaotong University*

Sino-Italian Workshop on Biomechanics

Welcome to BIOMECH 2019

Dear Colleagues,

it is our pleasure to welcome you in Rome for the Sino-Italian Workshop on Biomechanics. The Workshop, organized by the University of Rome Tor Vergata, will be held at Auditorium Antonianum in Rome, during July 1-3, 2019.

The Workshop is promoted by the Chinese and Italian Societies of Theoretical and Applied Mechanics, CSTAM and AIMETA, to bring together researchers with a variety of backgrounds to foster discussion, to exchange ideas, and to team up for addressing grand challenge problems in Biomechanics, including the fundamental understanding of molecular, cellular, tissue, and organ mechanics. Great opportunities arise for experimental, theoretical and computational researchers, calling for close collaborations among scientists from different fields.

Forty abstracts are scheduled for presentation in 10 technical sessions. A final round table session will take place at the end of the Workshop.

Looking forward to a fruitful Sino-Italian Workshop on Biomechanics, receive our best regards.

Rome, July 2019

The Workshop Chairs

Useful information

The Workshop will take place on July 1-3, 2019, at Auditorium Antonianum, Rome, Italy. The address of the Workshop venue is Viale Manzoni 1, Rome.

Registration / help desk

Workshop reception desk will be located in the hall at the entrance on the ground floor. The BIOMECH 2019 staff will be available to register participants at any time.

At registration, you will receive your workshop pack, including the workshop program, the workshop book of abstracts (also in digital version on a USB memory stick), your workshop badge, your Gala dinner ticket, and your certificate of attendance. During the Workshop and social events, including the Gala dinner, your workshop badge should be worn at all times.

Staff will be available in the hall at the entrance on the ground floor to answer any participant enquiries.

Technical sessions

Technical sessions will take place at San Bernardino room of Auditorium Antonianum.

All participants are expected both to attend the entire Workshop and to actively contribute to the discussions. The Workshop will take place in an informal atmosphere.

The details of the technical sessions can be found in the following pages.

Presentation instructions

The official language of the Workshop is English.

The time scheduled for keynote presentations is 30 minutes. The time scheduled for regular presentations is 20 minutes. Those times include 5 minutes for discussion. Chairs are requested to keep the sessions on schedule.

The room is equipped with a PC and a computer projector. Presenters should provide to the staff in the room the file for the presentation in PDF (Acrobat) or PPT (PowerPoint) format on a USB memory stick. This should be done 15 minutes before each session. Otherwise, presenters may send their presentations to the workshop e-mail address (biomechanics.workshop@gmail.com) by the day before their presentation. Alternatively, presenters might use their own PC. In that case, the PC should be equipped with a HDMI port. In any case, all the presenters are invited to bring along a backup copy of their presentation on a USB memory stick. Technical staff will be available onsite to assist presenters in uploading their presentations and solving technical problems that may arise.

Social events

Walking tour. Participants wishing to immerse themselves in the beauty of ancient Rome are kindly invited to participate in the walking tour, guided by two art historians (Chinese and Italian speaking). The walking tour will take place at 18:00 on July 2, with arrival point at the Gala dinner venue. Further details and practical instructions can be found below.

Aperitif and Gala Dinner. They will take place at Roof Garden Hotel Forum, Via Tor de' Conti, 25, Rome. The Aperitif (wine tasting) will begin at 20:00, July 2. It will be followed by the Gala dinner at 20:30. Staff will be checking Gala dinner tickets on arrival at the dinner venue. Further details and practical instructions can be found below.

Meals and refreshments

Lunches and coffee breaks will be served at San Francesco room of Auditorium Antonianum, according to the program.

Accompanying persons

Accompanying persons are welcome to participate in the social events, and to enjoy meals and refreshments at Workshop venue.

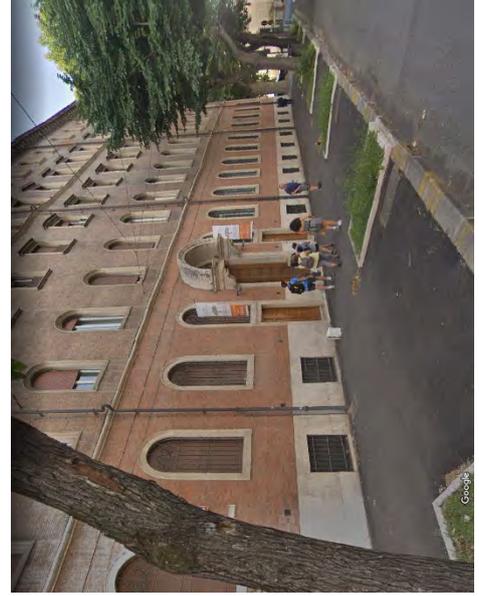
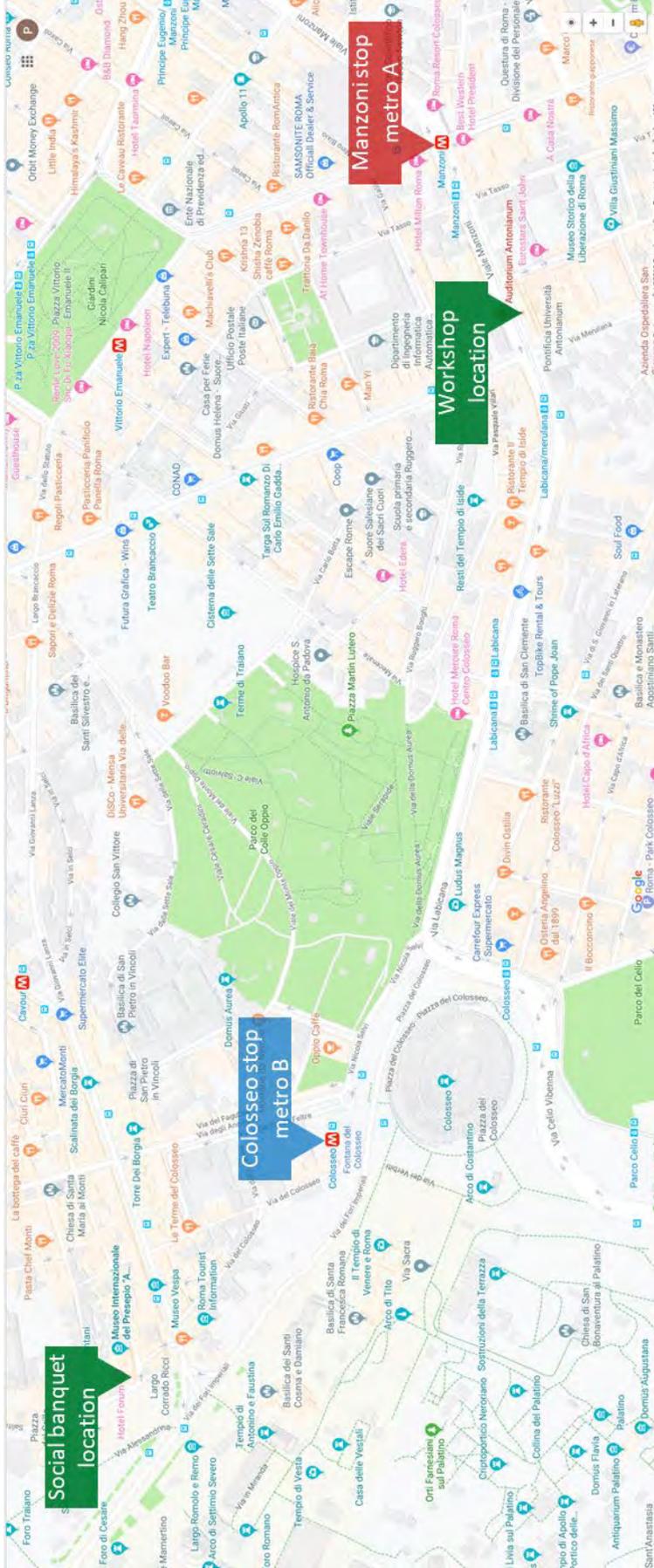
Wireless internet connection

The BIOMECH 2019 has enabled a specific Wi-Fi network for Workshop delegates at Auditorium Antonianum.

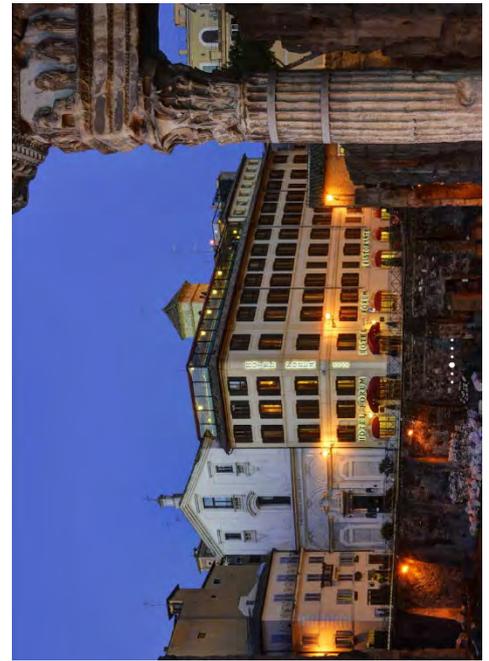
Wi-Fi: Auditorium Antonianum

Password: Biomech19

Workshop venue



Workshop location
Auditorium Antonianum
 Viale Manzoni 1



Social banquet location
Roof Garden hotel Forum
 Via Tor de'Conti, 25

Sino-Italian Workshop on Biomechanics

General Program

Monday, July 1, 2019

8:30 – 9:00	Participant registration
9:00 – 9:20	Workshop Opening Ceremony
9:20 – 10:30	Session 1
10:30 – 11:00	Coffee break
11:00 – 12:50	Session 2
12:50 – 14:00	Lunch
14:00 – 15:30	Session 3
15:30 – 16:00	Coffee break
16:00 – 17:50	Session 4

Tuesday, July 2, 2019

9:00 – 10:30	Session 5
10:30 – 11:00	Coffee break
11:00 – 12:50	Session 6
12:50 – 14:00	Lunch
14:00 – 15:10	Session 7
15:10 – 15:40	Coffee break
15:40 – 17:10	Session 8
18:00 – 20:00	Walking Tour
20:00 – 20:30	Aperitif – wine tasting (Roof Garden Hotel Forum)
20:30 – 23:00	Gala dinner (Roof Garden Hotel Forum)

Wednesday, July 3, 2019

9:00 – 10:30	Session 9
10:30 – 11:00	Coffee break
11:00 – 12:10	Session 10
12:10 – 13:00	Session 11 – Round Table
13:00 – 13:10	Workshop closure
13:10 – 14:20	Lunch

Sino-Italian Workshop on Biomechanics

Technical Program

Monday, July 1, 8:30 – 14:00

8:30 – 9:00	Participant registration
9:00 – 9:20	Workshop Opening Ceremony

<i>Time</i>	<i>Presentation</i>
9:20 – 10:30	Session 1 – Chairman: Paolo Bisegna
9:20 – 9:50	X-Mechanics: An Endless Frontier – keynote <u>Wei Yang</u>
9:50 – 10:10	Mechano-electrical transduction and dynamical response of Arabidopsis trichome <u>Shaobao Liu</u>
10:10 – 10:30	An isogeometric framework for red blood cell electro-deformation simulation <u>Nicola A. Nodarqi, Josef Kiendl, Paolo Bisegna, Federica Caselli, Laura De Lorenzis</u>

10:30 – 11:00	Coffee break
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<i>Time</i>	<i>Presentation</i>
11:00 – 12:50	Session 2 – Chairman: Tianjian Lu
11:00 – 11:30	Some mechanical ‘laws’ in cell mechanosensing behaviors – keynote <u>Baohua Ji</u>
11:30 – 11:50	An Analysis of the Micro Mechanical Environments In Vivo for Vascular Cells <u>Xiaobo Gong, Zonglai Jiang</u>
11:50 – 12:10	A Differential Model for the Effect of Line Patterns on Vascular Endothelial Cells <u>Nicole Roselli, Alessia Castagnino, Daniele Andreucci, Giuseppe Pontrelli, Abdul Barakat</u>
12:10 – 12:30	Engineering Cell Mechanical Microenvironment <u>Feng Xu</u>
12:30 – 12:50	Impedance-based lab-chip devices for single-cell monitoring and biophysical characterization <u>Riccardo Reale, Adele De Ninno, Luca Businaro, Paolo Bisegna, Federica Caselli</u>

12:50 – 14:00	Lunch
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Monday, July 1, 14:00 – 17:50

<i>Time</i>	<i>Presentation</i>
14:00 – 15:30	Session 3 – Chairman: Gianluigi Rozza
14:00 – 14:30	Acoustics and vibration of a liquid-filled microtube – keynote <u>Tian Jian Lu</u>
14:30 – 14:50	Bioinspired Self-Recovery in Superhydrophobic Surfaces <u>Alberto Giacomello, Simone Meloni, Carlo Massimo Casciola</u>
14:50 – 15:10	Computational simulations of endovascular stenting <u>A. Finotello, R. M. Romarowski, M. Conti, S. Morganti, F. Auricchio</u>
15:10 – 15:30	Association between helical blood flow and atherosclerotic plaque progression in coronary arteries: an animal-specific study <u>Giuseppe De Nisco, Ayla Hoogendoorn, Annette M. Kok, Claudio Chiastra, Diego Gallo, Jolanda J. Wentzel, Umberto Morbiducci</u>

15:30 – 16:00	Coffee break
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<i>Time</i>	<i>Presentation</i>
16:00 – 17:50	Session 4 – Chairman: Zhong Zhang
16:00 – 16:30	Reduced Order Methods for PDEs: state of the art and perspectives with applications in cardiovascular flows – keynote <u>Gianluigi Rozza</u>
16:30 – 16:50	Parametric reduced order methods for computational hemodynamics simulations <u>Francesco Ballarin, Gianluigi Rozza</u>
16:50 – 17:10	Computational engineering for the heart: a multi-physics model for medical support <u>Francesco Viola, Valentina Meschini, Roberto Verzicco</u>
17:10 – 17:30	Analysis of cardiac fluid dynamics in prolapsed and repaired mitral valves <u>Dario Colli, Gianni Pedrizzetti</u>
17:30 – 17:50	An acoustic switch with controllable frequency output <u>Congyi Fu, Jingxian Xu, Tianfei Zhao, C.Q. Chen</u>

Tuesday, July 2, 9:00 – 14:00

<i>Time</i>	<i>Presentation</i>
9:00 – 10:30	Session 5 – Chairman: Xiqiao Feng
9:00 – 9:30	Morphing and shape control in mechano-biology: some lessons from the motility of unicellular organisms – keynote <i>Antonio DeSimone, Alessandro Lucantonio, Giovanni Noselli</i>
9:30 – 9:50	Mechanical Response of an Open System: Shape and Dynamics of Adhesive Cells <i>Hongyuan Jiang</i>
9:50 – 10:10	Material viscosity and plasticity regulated adhesion and spreading of cells <i>Ze Gong, Yuan Lin, V.B. Shenoy</i>
10:10 – 10:30	The mechanics of target drug delivery <i>Xinghua Shi</i>
10:30 – 11:00	Coffee break
11:00 – 12:50	Session 6 – Chairman: Alberto Salvadori
11:00 – 11:30	Biomimetic surface morphologies for antifouling application – keynote <i>Jimin Fu, Hua Zhang, Dan-qing Feng, Vengatesen Thiyagarajan, Haimin Yao</i>
11:30 – 11:50	Mechanics of nanofibers packing in vesicles: Effects of fiber length, radius, and elasticity <i>Xin Yi</i>
11:50 – 12:10	Size effect on temperature-dependent stiffness of viral DNA <i>Nenghui Zhang, Chengyin Zhang</i>
12:10 – 12:30	A chemo-mechano-biologic model of arterial tissues: coupling molecular transport and multiscale tissue remodelling <i>Michele Marino, Giuseppe Vairo, Peter Wriggers</i>
12:30 – 12:50	The Importance of Niches-dimensionality in Regulating the Bone Marrow Hematopoietic Stem Progenitor Cells Fate <i>Pan Zhang, Chen Zhang, Jiyang Han, Xiru Liu, Hui Yang</i>
12:50 – 14:00	Lunch

Tuesday, July 2, 14:00 – 17:10

<i>Time</i>	<i>Presentation</i>
14:00 – 15:10	Session 7 – Chairman: Antonio DeSimone
14:00 – 14:30	Insights on the receptor dynamics during the spreading of endothelial – keynote <i>A. Salvadori, M. Serpelloni, M. Arricca, C. Ravelli, E. Grillo, S. Mitola</i>
14:30 – 14:50	Mechanics of crosslinked biopolymer networks with active motors <i>Jin Qian</i>
14:50 – 15:10	Mechanics of surface growth: stability of a 1D actin treadmilling system <i>Rohan C. Abeyaratne, Eric Puntel, Giuseppe Tomassetti</i>

15:10 – 15:40	Coffee break
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<i>Time</i>	<i>Presentation</i>
15:40 – 17:10	Session 8 – Chairman: Jizeng Wang
15:40 – 16:10	Numerical assessment of prosthetic heart valve performance: leaflet kinematics, turbulence levels and cell damage – keynote <i>Marco D. de Tullio</i>
16:10 – 16:30	The role of Digital Twins in the Medicine 4.0 <i>Marco Evangelos Biancolini, Corrado Groth, Stefano Porziani, Pier Paolo Valentini, Emiliano Costa, Margherita Cioffi, Michel Rochette, Christelle Boichon, Emanuele Gasparotti, Simona Celi</i>
16:30 – 16:50	Assistive hand exoskeleton systems to restore the quality of life <i>Matteo Bianchi, Nicola Secciani, Enrico Meli, Alessandro Ridolfi, Benedetto Allotta</i>
16:50 – 17:10	Strength assessment of metastatic femurs via a refined constitutive approach <i>Cristina Falcinelli, Alessio Gizzi, Alberto Di Martino, Giuseppe Vairo</i>

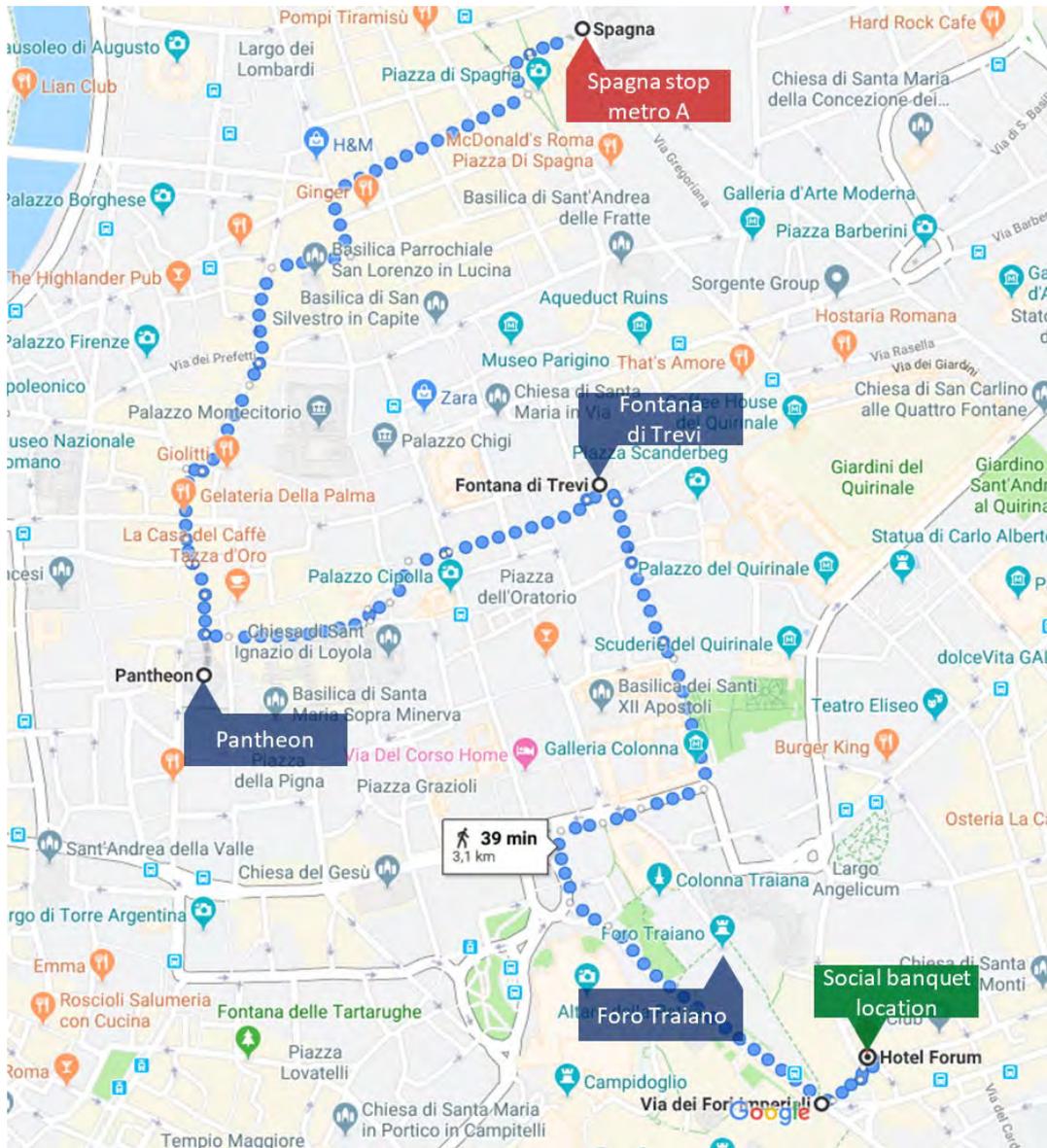
18:00 – 20:00	Walking Tour
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20:00 – 20:30	Aperitif – wine tasting (Roof Garden Hotel Forum)
20:30 – 23:00	Gala dinner (Roof Garden Hotel Forum)

Wednesday, July 3, 9:00 – 14:20

<i>Time</i>	<i>Presentation</i>
9:00 – 10:30	Session 9 – Chairman: Marco D. de Tullio
9:00 – 9:30	Dynamics of Collective Cells – keynote <u><i>Xi-Qiao Feng</i></u>
9:30 – 9:50	Spider dragline silk acts as a torsional actuator <u><i>Dabiao Liu, Anna Tarakanova, Claire C. Hsu, Miao Yu, Yuming He, D. J. Dunstan, Markus J. Buehler</i></u>
9:50 – 10:10	Fracture of Biogenic Nanotwinned Materials <u><i>Xiaoyan Li</i></u>
10:10 – 10:30	Shape Memory Polymer Composites <u><i>Yufeng Guo, Yayun Liu, Junchao Liu, Jun Zhao, Hui Zhang, Zhong Zhang</i></u>
10:30 – 11:00	Coffee break
11:00 – 12:10	Session 10 – Chairman: Jianxiang Wang
11:00 – 11:30	Stretching semiflexible biopolymers in a tube – keynote <u><i>Jizeng Wang, Kai Li, Ming Li</i></u>
11:30 – 11:50	Hydrogel 3D printing with the capacitor edge effect <u><i>Tongqing Lu, Jikun Wang Tiejun Wang</i></u>
11:50 – 12:10	Quantitative study on magnesium alloy biodegradation process <u><i>Lizhen Wang, Yubo Fan</i></u>
12:10 – 13:00	Session 11 – Round Table – Chairman: Tianjian Lu
13:00 – 13:10	Workshop closure
13:10 – 14:20	Lunch

Further details on walking tour (July 2, 2019)



Two art historian guides will be available (Chinese and Italian speaking).

Meeting point in front of **Best Western Hotel President at 18:00**.

By metro line A, station “**Manzoni**”, direction Battistini, arrival at station “**Spagna**”.

Guided visit of **Pantheon, Fontana di Trevi, Foro Traiano**.

Arrival at **Roof Garden Hotel Forum at 20:00**.

Total walking distance is about 3 Km.

Please note that, according to the weather forecast, temperatures around 32 °C are expected.

Further details on Gala dinner (July 2, 2019)



From Workshop venue to Gala dinner venue

Participants attending the walking tour will reach the Gala dinner venue at 20:00 guided by the art historians (see previous page for details).

Participants who do not wish to attend the walking tour can reach directly the Gala dinner venue, which is within 20 minutes walking distance from the Auditorium Antonianum.

Walking directions.

Starting from the Auditorium Antonianum, walk along Laticiana street to the Coliseum (about 800m), then run along Coliseum and keep walking along Fori Imperiali street (about 600m), then turn on the right along Cavour street (about 90 m), and finally turn on the left along Tor de' Conti street (about 100m).

Bus directions

Bus line 87 links Auditorium Antonianum with Hotel Forum.

Get on at Laticiana/Merulana stop, direction Giulio Cesare / Lepanto and get off at Fori Imperiali stop (it is the third stop).

From Gala dinner venue to Workshop venue

Walking directions.

The reverse path can be followed by all participants at the end of the Gala dinner to walk back to their hotels.

Bus directions

Bus line 87, direction L.go Colli Albani, can be used.

Get on at Fori Imperiali stop and get off at Laticiana/Merulana stop.

