POLITECNICO DI TORINO

DiSAT

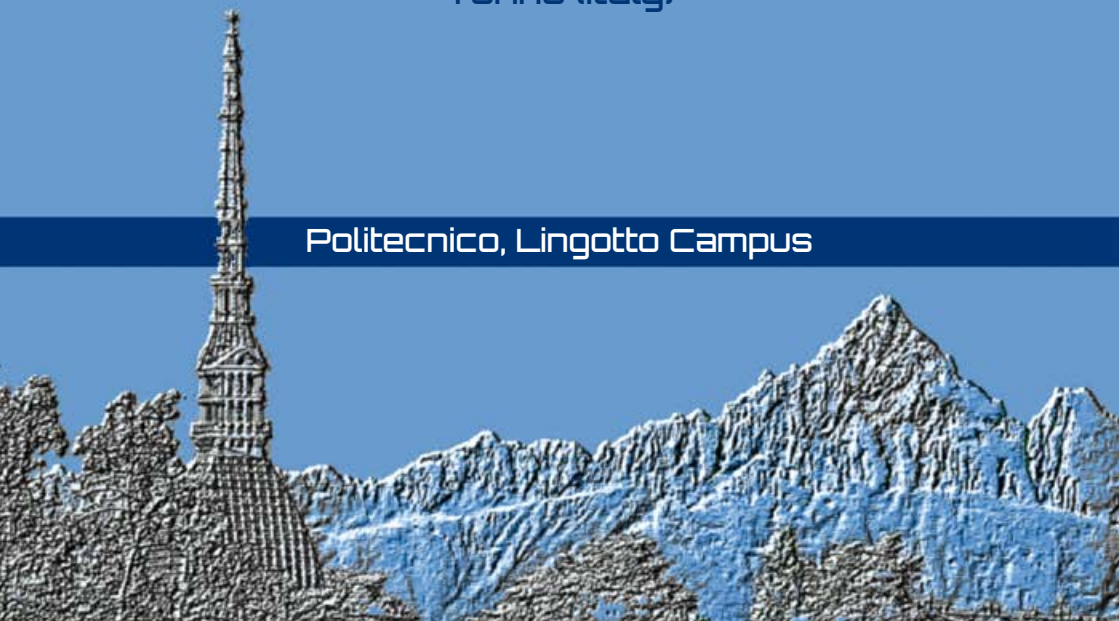
SuperFOx 2016

Third Conference on Superconductivity and Functional Oxides

September 19-21, 2016

Torino (Italy)

Politecnico, Lingotto Campus



SuperFOx was born in 2012 as a dedicated meeting for the scientific communities working in the fields of superconductivity and functional oxides.

It is rooted in the traditions of SATT (Conferenza Nazionale di Superconduttività) and FOxE (Congresso Nazionale sugli Ossidi Funzionali per l'Elettronica), and since its first edition, it has been characterized by an international profile.

Following the evolution of current research, new scientific topics have been included in SuperFOx program, with the aim of promoting knowledge exchange between adjacent fields of research in solid-state physics.

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Simona Balestracci (ISC-CNR, Politecnico di Torino)

Aula Magna *ground floor* | Room 201 *second floor* | Room 202 *second floor*

Monday September 19

11:00	Registration opening	
14:00	Welcome and conference opening	
14:20 *16:00*	Opening session 1 - *Chairs:* R. De Renzi *(Parma)*, L. Degiorgi *(Zürich)*	
14:20	**Plenary lecture** • Control of collective quantum phenomena in metal-oxide superlattices. **B. Keimer** *(Stuttgart)*	
15:10	**Plenary lecture** • Theory of light-control of oxides and of light-induced superconductivity in fullerenes. **A. Georges** *(Palaiseau)*	
16:10 *16:50*	**Session 1 • Superconducting materials and properties.** ***Chair: M. Putti (Genova)***	**Session 2 • Oxide interfaces and heterostructures.** ***Chair: M. Cantoni (Milano)***
16:10	Origin of the resistive anisotropy in the electronic nematic phase of $BaFe_2As_2$ revealed by optical spectroscopy. **L. Degiorgi** *(Zürich)*	Hardening of the soft phonon in bulk $SrTiO_3$ interfaced with $LaAlO_3$ and $SrRuO_3$. **P. Calvani** *(Roma)*
16:30	Anisotropy of transport properties in parent compound $BaFe_2As_2$. **M. Meinero** *(Genova)*	Interplay of structural, ferroelectric and magnetic properties at the $BaTiO_3$ / $La_{0.7}Sr_{0.3}MnO_3$ interface. **G. Vinai** *(Trieste)*
16:50	*coffee break*	
17:10 *18:30*	**Session 3 • Superconducting materials and properties.** ***Chair: P. Carretta (Pavia)***	**Session 4 • Oxide interfaces and heterostructures.** ***Chair: P. Calvani (Roma)***
17:10	Disorder in superconductors by isovalent substitution. **R. De Renzi** *(Parma)*	Chemical and structural properties of chromium oxide films on ferroelectric $BaTiO_3$ templates. **M. Cantoni** *(Milano)*
17:30	Shubnikov-de Haas oscillations in single crystals of SmFeAs(O,F). **A. Leveratto** *(Genova)*	Carrier confinement in p and n doped homometallic heterostructures based on strongly correlated oxides. **A. Galdi** *(Fisciano)*
17:50	Impressive Mn driven charge localization in optimally electron doped $LaFeAsO_{0.89}F_{0.11}$. **M. Moroni** *(Pavia)*	TeraFERMI: a new beamline at Free Electron Laser FERMI for non linear THz spectroscopy. **P. Di Pietro** *(Basovizza)*
18:10	Electrochemical gating in thin films of conventional and unconventional superconductors: NbN and P-doped $BaFe_2As_2$. **E. Piatti** *(Torino)*	Unconventional transport in two-dimensional materials with strong Rashba spin-orbit coupling. **V. Brosco** *(Trieste)*

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Tuesday September 20

8:30 9:55	Opening session 2 - *Chairs:* A. Perali *(Camerino)*, G. Profeta *(L'Aquila)*	
8:30	**Plenary lecture** • The roadmap to applications of graphene, layed materials and hybrid systems. **A. C. Ferrari** *(Cambridge)*	
9:20	**Invited talk** • Universal increase in the superconducting critical temperature of two-dimensional semiconductors at low doping by the electron-electron interaction. **M. Calandra** *(Paris)*	
10:00 10:40	**Session 5 • Superconducting materials and properties.** ***Chair: M. Cinchetti (Kaiserslauten)***	**Session 6 • Graphene and other low-dimensional materials.** ***Chair: G. Profeta (L'Aquila)***
10:00	Band structure and electron-phonon coupling in H_3S: a tight-binding model. **L. Ortenzi** *(Roma)*	3-dimensional graphene. **S. Lupi** *(Roma)*
10:20	Multi-gap superconductivity and interaction driven resonances in superconducting films with an insulating thin layer. **M. Cariglia** *(Camerino)*	Nanoscale characterization of the thermal conductivity of supported graphite nanoplates, graphene and few-layer graphene. **M. Tortello** *(Torino)*
10:40	*coffee break*	
11:00 12:40	**Session 7 • Superconducting materials and properties.** ***Chair: C. Senatore (Geneva)***	**Session 8 • Graphene and other low-dimensional materials.** ***Chair: S. Lupi (Roma)***
11:00	Magnons, phonons and charge density waves in cuprates studied by ultra-high resolution RIXS. **G. Ghiringhelli** *(Milano)*	Novel Ba doped graphene reconstruction. **G. Profeta** *(L'Aquila)*
11:20	Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides. **F. Cilento** *(Basovizza)*	Large gap electron-hole superfluidity and shape resonances in coupled graphene nanoribbons. **A. Perali** *(Camerino)*
11:40	Doping dependence of normal and superconducting state transport properties of $Nd_{2-x}Ce_xCuO_{4\pm d}$ thin films. **A. Guarino** *(Fisciano)*	Ultra slow reverse saturable absorption of graphene oxide dispersions. **N. Ghofraniha** *(Roma)*
12:00	The effect of artificial vortex pinning centers on transport properties in $YBa_2Cu_3O_{7-x}$ films at low temperatures. **A. Frolova** *(Roma)*	BKT transition in thin superconducting films and artificial nanostructures. **I. Maccari** *(Roma)*
12:20	Study of two different artificial pinning strategies in $YBa_2Cu_3O_{7-x}$ films deposited by metal organic decomposition method. **L. Piperno** *(Frascati)*	Quantum cooperation of electron and hole states in Weyl semimetals WTe_2 and strained HgTe. **D. Di Sante** *(Würzburg)*
12:40	*lunch*	

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Tuesday September 20

13:45 *15:15*	**Poster session** *(List of presentations at page 8)* - *Chair:* L. Gozzelino *(Torino)*	
15:15	Pearson: soluzioni digitali per la didattica della fisica. **R. Candido** *(Milano)*	
15:30 *16:50*	**Session 9 • Superconducting materials and properties.** ***Chair: D. Daghero (Torino)***	**Session 10 • Magnetic oxides.** ***Chair: R. Bertacco (Milano)***
15:30	Mechanochemical assisted synthesis of $FeSe_xTe_{1-x}$ material: a structural and thermoanalytical study. **A. Masi** *(Roma)*	Spin-lattice coupling and magneto-conductive behaviour in $Y_{2-x}Zn_xRu_2O_7$ pyrochlores. **C. Castellano** *(Milano)*
15:50	Stability mechanisms in the flux flow state of iron-chalcogenides. **A. Leo** *(Fisciano)*	Strong spin-orbit driven magnetism in e_g^1 Mott insulating state. **F. Forte** *(Salerno)*
16:10	Determination of temperature dependent local atomic displacements in ammonia intercalated iron selenide superconductor. **E. Paris** *(Roma)*	$(La,Sr)MnO_3$- based microelectromechanical systems. **F. Remaggi** *(Genova)*
16:30	Weak localization effects in aged iron-chalcogenide superconducting films investigated by noise spectroscopy. **C. Barone** *(Fisciano)*	Magnetic properties of CoO/Fe(001) with controlled interfacial properties. **A. Brambilla** *(Milano)*
16:50	*coffee break*	
17:10 *18:10*	**Session 11** **Superconducting electronics.** ***Chair: G. Pepe (Napoli)***	**Session 12 • Topological insulators and superconductors.** ***Chair: G. Panaccione (Trieste)***
17:10	Nanoscale superconductive memories. **S. Pagano** *(Fisciano)*	Spin-resolved angular-resolved photo-emission spectroscopies experiments on epitaxial Bi_2Se_3 thin films grown pulsed laser deposition. **P. Orgiani** *(Fisciano)*
17:30	Transition-edge sensors: superconductivity for photon detection. **M. Rajteri** *(Torino)*	Strong correlation effects in topological quantum phase transitions. **A. Amaricci** *(Trieste)*
17:50	Quantum-accurate waveform synthesis with pulse-driven Josephson junctions. **A. Sosso** *(Torino)*	Understanding the transport properties and the topological character of $ZrTe_5$. **G. Manzoni** *(Trieste)*
18:10	**Meeting of the Scientific Committee**	
20:00	*social dinner (Castello del Valentino)*	

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Wednesday September 21

9:00 *10:10*	Opening session 3 - *Chairs:* M. Calandra *(Paris)*, S. Calatroni *(Geneva)*	
9:00	**Invited talk** • High field applications of HTS materials: the path towards all-superconducting magnets in the 30 T-range. **C. Senatore** *(Geneva)*	
9:35	**Invited talk** • The route towards interface-assisted molecular spintronics: from ferromagnetic metals to spin-textured materials. **M. Cinchetti** *(Kaiserslautern)*	
10:20 *11:00*	**Session 13 • Nanostructured materials and devices.** ***Chair: S. Pagano (Fisciano)***	**Session 14 • Oxide interfaces and heterostructures.** ***Chair: R. S. Gonnelli (Torino)***
10:20	Size control of charge-orbital order and orbital-selective Mottness in nanoscopic La-doped manganites. **A. Valli** *(Trieste)*	Charge doping of CuO_2 planes in CCO based heterostructures. **D. Di Castro** (*Roma*)
10:40	High dose effects by synchrotron radiation nanobeams: a novel non-destructive patterning technique for $Bi_2Sr_2CaCu_2O_{8+\delta}$ and possibly for other oxides. **M. Truccato** *(Torino)*	Mesoscopic disorder and intrinsic charge instability in oxide heterostructures **N. Scopigno** *(Roma)*
11:00	*coffee break*	
11:20 *13:00*	**Session 15 • Large scale applications of superconductors.** ***Chair: R. Zanino (Torino)***	**Session 16 • Strongly correlated systems - Topological insulators and superconductors.** ***Chair: M. Capone (Trieste)***
11:20	Study of superconducting TI(1223) coatings for beam impedance mitigation in the FCC. **S. Calatroni** (*Geneva*)	Defects, disorder, and strong electron correlations in orbital degenerate, doped Mott insulators. **A. Avella** *(Fisciano)*
11:40	HTS DC transmission and distribution as an enabler for increased penetration of renewable generation. **A. Morandi** *(Bologna)*	Disorder-driven metal-insulator transitions in deformable lattices. **S. Ciuchi** *(L'Aquila)*
12:00	Analysis of the tests of the superconducting Cable in Conduit Conductors for the ITER project. **M. Breschi** *(Bologna)*	Superfluid density in underdoped cuprates: a gauge approach. **P. A. Marchetti** *(Padova)*
12:20	From ITER to DEMO: how the lessons learnt in the analysis of the cooling of the ITER superconducting magnets could help in the design of the DEMO magnet system. **R. Bonifetto** *(Torino)*	The role of Hund's coupling in the correlations and the nematicity of iron superconductors. **L. Fanfarillo** *(Trieste)*
12:40	Test results of the DEMO TF conductor designed by ENEA. **V. Corato** *(Frascati)*	Anomalous Josephson effect in proximized quantum spin Hall edge states. **F. Dolcini** *(Torino)*

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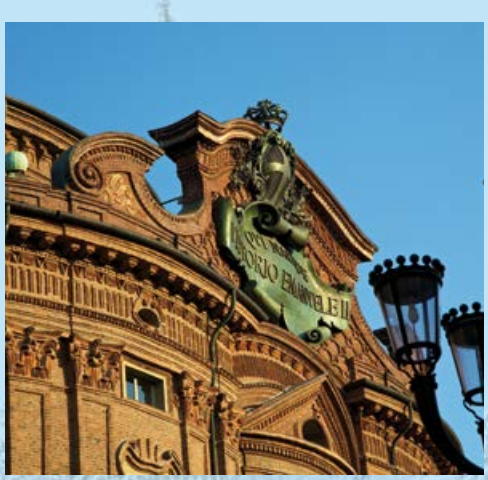
Wednesday September 21

13:00	*lunch*	
14:00 *15:00*	**Session 17 • Superconducting materials and properties.** ***Chair: J. Lorenzana (Roma)***	**Session 18 • Dielectrics, ferroelectrics and multiferroics.** ***Chair: D. Di Sante (Würzburg)***
14:00	Poisoning of superconductivity by Mn-induced spin localization and clustering in $LaFe_{1-x}Mn_xAsO_{0.89}F_{0.11}$. **G. Allodi** *(Parma)*	Memristive ferroelectric tunnelling junctions for applications in neuromorphic networks. **M. Asa** *(Milano)*
14:20	Electronic properties of superconducting FeS. **C. Tresca** *(Coppito)*	Electric field-induced transitions and technological implications. **G. Viola** *(Torino)*
14:40	Phase coexistence of superconductivity and magnetism driven by spinorial order parameter. **A. Vargas-Paredes** *(Camerino)*	Magneto-ionic effects in $CoFeB/GdO_x$. **L. Baldrati** *(Milano)*
15:00	Closing	



POSTER DISPLAY NUMBER	POSTER TITLE AND AUTHOR
Graphene and other low-dimensional materials	
01	Low entropy in graphene through the Co-C system. *F. Beccaria (Torino)*
02	Real-time optical monitoring of the photoreduction of graphene oxide: demonstrations and application to graphene oxide/titanium dioxide composites. *S. Lettieri (Pozzuoli)*
Magnetic Oxides	
03	Interplay between strong spin-orbit coupling, crystal field splitting and Hund's exchange in $KOsO_4$. *D. Guerra (Salerno)*
Oxide interfaces and heterostructures	
04	(Zn, Mg)O/ZnO heterostructures: a deep study of the quantum effects. *A. Leveratto (Genova)*
Superconducting electronics	
05	INRiM cryocooler setup for operation of Josephson standards. *P. Durandetto (Torino)*
Superconducting materials and properties	
06	Orbital-dependent Fermi surface shrinking as a fingerprint of nematicity in FeSe. *L. Fanfarillo (Trieste)*
07	Flux dynamics, pinning and critical current of FeSe superconductor with and without silver doping. *A. Galluzzi (Fisciano)*
08	Development of metallic substrates based on Fe/Ni alloys for the deposition of Fe(Se,Te) superconducting thin films. *G. Sylva (Genova)*
09	Magnetic states of MnP under hydrostatic pressure. *P. Bonfà (Parma)*
10	Competing effects of Mn and Y doping on the low-energy excitations and phase diagram of $La_{1-y}Y_yFeAsO_{0.89}F_{0.11}$ iron-based superconductors. *S. Sanna (Pavia)*
11	Electronic phase diagram of $SmFe_{1-x}Mn_xAsO_{0.88}F_{0.12}$. *G. Lamura (Genova)*
12	Effect of proton irradiation on the low-energy excitations of $Ba(Fe_{1-x}Rh_x)_2As_2$ superconductors. *P. Carretta (Pavia)*

POSTER DISPLAY NUMBER	POSTER TITLE AND AUTHOR
13	Decoupling of T_c and energy gap amplitudes in irradiated $BaFe_2(As,P)_2$. *D. Daghero (Torino)*
14	Effects of heavy-ion induced disorder in Co- and K-doped $BaFe_2As_2$ crystals, investigated by a microwave coplanar resonator technique. *G. Ghigo (Torino)*
15	Vortex pinning anisotropy due to heavy-ion irradiation of superconductors observed by quantitative magneto-optical imaging. *F. Laviano (Torino)*
16	Anisotropic gaps and Fermi-surface topological phase transitions in Fe-based superconductors studied by point-contact Andreev-reflection spectroscopy. *R. S. Gonnelli (Torino)*
17	Multiband Eliashberg-theory interpretation of the anomalous pressure dependence of the gap values in $CaFe_2As_2$. *G. A. Ummarino (Torino)*
18	Development of multifilamentary $Bi_2Sr_2CaCu_2O_{8+x}$ round wires and dependence of the critical current on oxygen overdoping. *V. Zunino (Genova)*
19	Growth process and pinning properties of $YBa_2Cu_3O_{7-\delta}$ thin films obtained by low fluorine MOD for coated conductors applications. *A. Angrisani Armenio (Frascati)*
20	A comparison between Barium-based composites for APC introduction in YBCO coated conductors. *V. Galluzzi (Frascati)*
21	Far infrared sensor by heavy-ion lithography on superconducting films. *R. Gerbaldo (Torino)*
22	Shielding properties of superconducting and superconducting/ferromagnetic superimposed systems. *L. Gozzelino (Torino)*
23	Single s-wave superconductivity of non-centrosymmetric $Nb_{0.18}Re_{0.82}$ thin films probed by tunneling spectroscopy. *M. Caputo (Fisciano)*
Topological insulators and superconductors	
24	Complete photoemission experiment for probing spin texture at surfaces: commissioning of VLEED detectors for 3D spin-resolved ARPES and first experiments. *C. Bigi (Milano)*
25	Topological states in a spinful 1D chain with periodic-potential and Rashba spin-orbit interaction. *V. Benvenuto (Fisciano)*

The conference venue

The conference will be held at the Lingotto Campus of the Politecnico di Torino, via Nizza 230.
Conference rooms are both at the ground floor (Main Hall, plenary sessions) and at the second floor (parallel session rooms). The organizing secretariat desk will be located at the second floor as well as the exhibition and poster areas.

Instructions for speakers

Presentations (.ppt or .pdf) must be handed in on a USB stick at the conference staff in the meeting room where your presentation is scheduled, during coffee breaks or lunches. Speakers are kindly asked to be in the meeting room at least 10 minutes before their session begins. Sessions are tightly scheduled and it is important that the allotted time be strictly observed. For organisational reasons, speakers are asked to inform the conference staff in the meeting room well in advance if they have audiovisual material that requires special software. Computers equipped with PowerPoint 2010 are available in every room.
For any further information on the audiovisual means, please apply to the conference secretariat in good time.

Poster display

Posters will be displayed in the poster area located at the second floor.
Maximum allowed poster size is cm 84 width x 118 height (A0).
Authors can mount their posters on **Monday, September 19 as of 12:00**. Poster space numbers *(see poster list at page 8)* indicate their position on the display board. Presenters are encouraged to leave their posters on display throughout the conference. Presenters are also invited to stand by their posters to answer attendees' questions on **Tuesday September 20 from 13:45 to 15:15**.
Posters must be removed on **September 21 by 14:00**. If not, they will be disposed off.
The conference organization cannot be deemed responsible for lost or stolen posters.
For more information please apply to the secretariat desk.

Registration

Pre-registered participants can collect their conference kit and personal name badge at the organizing secretariat desk located at the second floor.
Opening times: ***Monday, September 19: 11:00 • 19:00 - Tuesday, September 20: 08:00 • 18:30 Wednesday, September 21: 08:00 • 16:00***

Registration fees:

Early registration (until July 11, 2016)
Senior: € 220,00 + VAT 22%
Student: € 170,00 + VAT 22%

Late registration (until September 9, 2016)
Senior: € 270,00 + VAT 22%
Student: € 195,00 + VAT 22%

On-site registration
Senior: € 320,00 + VAT 22%
Student: € 220,00 + VAT 22%

*Registration fee for undergraduate students **
Full Conference: € 100,00 + VAT 22%
Daily fee: € 50,00 + VAT 22%

** These rates will be applied to undergraduate students ONLY.* Interested people are kindly required to contact superfox@symposium.it for registration procedure.

N.B.: a certificate proving the student status will be required.

For cancellation policy see superfox2016.polito.it/registration.html

Badges

All delegates and exhibitors are kindly requested to always wear their name badge.
Entrance to meeting rooms will be limited to delegates only.
Badge colours:
• Blue: DELEGATES • Red: EXHIBITORS • Yellow: LOCAL ORGANIZING COMMITTEE AND ORGANIZING SECRETARIAT STAFF

Language
Official language will be English. No simultaneous translation will be provided.

Coffee breaks and lunches
Refreshments will be served in the catering areas located at the first and second floors.
See conference programme for coffee break and lunch times.

WI-fi access
Conference participants can access Internet via the Politecnico WiFi network at the conference venue.
Interested people are required to apply to the secretariat desk for their personal password.

Social dinner
The conference social dinner will be held on **Tuesday, September 20 at 20:00** at the Castello del Valentino, viale Mattioli 39.
Participation fee: € 49,00 including VAT.
Admittance will be limited to ticket holders.
For more information on ticket availability please apply to the conference secretariat desk.

Tourist information
An information point of the city tourist agency TurismoTorino will be open at the conference venue at the following times:
Monday September 19: 12:00-18:00 - Tuesday September 20: 10:00-14:00.
The main tourist information point is located in the city centre (Piazza Castello) and it is open from Monday to Sunday from 09:00 to 19:00. Phone: +39 011535181.
For more information, please also see ***www.turismotorino.org/index.aspx***

How to get to...

... the conference venue
The Politecnico site of Lingotto can be easily reached by metro (Lingotto metro station). It takes about 9 minutes from the city centre (Porta Nuova metro station). Get off at Lingotto Metro station.

... the social dinner venue
The social dinner will be held at the Castello del Valentino which is located in the Valentino's park alongside the river Po. It can be reached in about 10 minutes by tram (line 9) from the city centre (tram stop close to Porta Nuova railway station) or by Metro subway line (closest stop Marconi + about 10 minutes' walk).

Liability
Registered conference participants agree that neither the Organizing Committee nor the conference Secretariat are liable or assume any responsibility for damage or injuries to persons or property during the conference.
Participants are advised to arrange for their own health, travel and personal insurances.
The conference organization does not cover individuals against cancellation of bookings, theft or damage to belongings.

Disclaimer
All best endeavours will be made to present the conference programme as published.
However, the conference Organizing Committee and the Secretariat reserve the right to alter or cancel, without prior notice, any arrangements, timetables, plans or other items relating directly or indirectly to the conference, for any cause beyond our reasonable control.
The conference Organizing Committee and the Secretariat are not liable for any loss or inconvenience caused as a result of such alteration.

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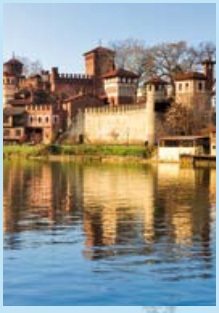

Organizing secretariat

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