

## Wednesday 15 June 2016 - AULA CONVEGNI (AC)

9:00 AM 9:15 AM **Christian Falconi** **Opening remarks**

### **KEYNOTE Speakers - I (Chair: Arnaldo D'Amico)**

9:15 AM 10:00 AM **Zhong Lin Wang** *Nanogenerators as new energy technology and piezotronics for smart systems*

10:00 AM 10:45 AM **Sang-Woo Kim** *Low-dimensional materials based nanogenerators*

10:45 AM 11:15 AM *Coffee Break*

### **KEYNOTE Speakers - II (Chair: Arnaldo D'Amico)**

11:15 AM 12:00 PM **Luigi Occhipinti** *Energy harvesting and storage solutions for wearable electronics applications in healthcare and ambient assisted living*

### **Session I-AC (Aula Convegni): Self-powered systems (Chairs: Xudong Wang, Henry Sodano)**

12:00 PM 12:30 PM **Keon Jae Lee** **Self-powered flexible inorganic electronic systems**

12:30 PM 12:45 PM **Zhou Li** *iTENG in Self-powered Implantable Medical Electronic Devices*

12:45 PM 1:00 PM **Tae-Ho Kim** *Self-powered transparent flexible graphene microheaters*

1:00 PM 2:00 PM *Lunch*

### **Session II-AC (Aula Convegni): Piezotronics and Piezo-phototronics I (Chairs: Max Migliorato, Mehmet Bayindir)**

2:00 PM 2:30 PM **Xudong Wang** **Piezotronics-regulated electrochemical and catalytic materials and devices**

2:30 PM 3:00 PM **Caofeng Pan** **Mapping strain/pressure with ZnO nanowire arrays by piezotronic and piezo-phototronic effect**

3:00 PM 3:30 PM **Junyi Zhai** **Piezophototronic materials and devices**

3:30 PM 3:45 PM **Weiguo Hu** *Piezo-phototronic effect tuned InGaN/GaN quantum well and its application in visible light communication (VLC)*

3:45 PM 4:15 PM *Coffee break*

**Session III-AC (Aula Convegna): Piezoelectric materials and properties (Chairs: Chuan-Pu Liu, Omer Nour)**

4:15 PM	4:45 PM	<b>Huiyun Liu</b>	<b>GaAsP nanowires and nanowire devices grown on silicon substrates</b>
4:45 PM	5:00 PM	Michael Schneider	Improved Piezoelectric Coefficients in Ultra-thin Aluminum Nitride Thin Films
5:00 PM	5:15 PM	Anuja Datta	Measurement of piezoelectricity and enhanced Curie temperature in (Ba <sub>0.85</sub> Ca <sub>0.15</sub> )(Zr <sub>0.1</sub> Ti <sub>0.9</sub> )O <sub>3</sub> nanowires
5:15 PM	5:30 PM	Tae Yun Kim	The Ferroelectric Coupling Effect on Self-Organized P(VDF-TrFE) Nanomatrices by Energy Band Structure Modification
5:30 PM	5:45 PM	Prokhor Alekseev	Diameter dependent elastic modulus of InP nanowires
6:30 PM	11:00 PM	<b>Rome tour and conference dinner</b>	

## Wednesday 15 June 2016 - AULA POLIFUNZIONALE (AP)

### Session I-AP (Aula Polifunzionale): Piezoelectric materials and properties I (Chairs: Chuan-Pu Liu, Miso Kim)

12:00 PM	12:15 PM	Michael Smith	A Piezo-Force Microscopy study of shear piezoelectricity in poly lactic acid nanowires
12:15 PM	12:30 PM	Zhibin Yang	Strain effect on the optical and electrical properties of amorphous black phosphorus ultrathin films
12:30 PM	12:45 PM	Canlin Ou	Template-assisted Hydrothermal Growth of Aligned Zinc Oxide Nanowires for Piezoelectric Energy Harvesting Applications
12:45 PM	1:00 PM	Huimin Hao	Epitaxial growth of vertically aligned piezoelectric diphenylalanine peptide microrods
1:00 PM	2:00 PM		<b>Lunch</b>

### Session II-AP (Aula Polifunzionale): Triboelectric Nanogenerators I (Chairs: Yue Zhang, Jung-Ho Ryu)

2:00 PM	2:30 PM	Jr-Hau He	<b>Flexible, foldable and multi-functional paper-based electronics</b>
2:30 PM	2:45 PM	Qiang Zheng	Biodegradable Triboelectric Nanogenerator for Implantable Medical Devices
2:45 PM	3:00 PM	Qijie Liang	Soluble energy harvesting device based on contact electrification and its sensing applications
3:00 PM	3:15 PM	Ruiyuan Liu	Hybrid Triboelectric Nanogenerators and Silicon-Based Solar Cell Compatible with Flexible Substrates
3:15 PM	3:30 PM	Xiong Pu	Wearable self-charging power textile
3:30 PM	3:45 PM	Weiqing Yang	Lawn Structured Triboelectric Nanogenerators for Scavenging Sweeping Wind Energy on Rooftop
3:45 PM	4:15 PM		<b>Coffee break</b>

### Session III-AP (Aula Polifunzionale): Triboelectric Nanogenerators II (Chairs: Jianhua Hao, Jun Bo Yoon)

4:15 PM	4:45 PM	Yue Zhang	<b>Recent progress in the applications of triboelectric nanogenerators</b>
4:45 PM	5:00 PM	Jongmoon Jang	Triboelectric-based artificial basilar membrane and its characterization by using animal model
5:00 PM	5:15 PM	Li Zheng	Hybridized Power Panel to Simultaneously Generate Electricity from Sunlight, Rain Drops and Wind Around the Clock
5:15 PM	5:30 PM	Xiao-Ming Tao	Optimization design of contact-mode triboelectric nanogenerators with fully verified theoretical treatment
5:30 PM	5:45 PM	Yeon Sik Choi	Crystal Structure Control of Electron Donating Polymer Films for Chemically Robust and Mechanically Flexible Triboelectric Nanogenerator
5:45 PM	6:00 PM	Long-biao Huang	Non-contact Triboelectric Nanogenerator for Energy Applications
6:30 PM	11:00 PM		<b>Rome tour and conference dinner</b>

## Thursday 16 June 2016 - AULA CONVEGNI (AC)

8:55 AM 9:00 AM **Massimo Inguscio** Welcome (President of the National Council of Research - Italy)

### Session IV-AC (Aula Convegni): Triboelectric Nanogenerators III (Chairs: Jr-Hau He, Keon-Jae Lee)

9:00 AM 9:30 AM **Jianhua Hao** Coupling magnetic field to piezophotonics and triboelectric nanogenerator

9:30 AM 10:00 AM **Jun Bo Yoon** Triboelectric energy harvesting using large-area 100 nm-pitch nano-grating template

10:00 AM 10:15 AM **Tao Jiang** Structural Optimization of Triboelectric Nanogenerator for Harvesting Water Wave Energy

10:15 AM 10:30 AM **Sung Kyun Kim** Controllable charge transfer of triboelectricity in ferroelectric materials

10:30 AM 10:45 AM **Hye-jeong Park** Self-Activated Luminescence Textile by Triboelectrification and Strain

10:45 AM 11:15 AM *Coffee break*

### Session V-AC (Aula Convegni): 2D materials (Chairs: Junyi Zhai, Usman Khan)

11:15 AM 11:45 AM **Evan Reed** Phase change and electromechanics of 2D and layered materials

11:45 AM 12:15 PM **Max Migliorato** 2D materials in the NGPT world

12:15 PM 12:45 PM **Sang Ouk Kim** Nanoscale assembly & chemical modification of graphene based materials

12:45 PM 1:00 PM **Qijun Sun** Active Matrix Electronic Skin Strain Sensor Based on Piezopotential-Powered Graphene Transistors

1:00 PM 2:00 PM *Lunch*

### Session VI-AC (Aula Convegni): Triboelectric Sensors and Tribotronics (Chairs: Jung Ho Kim, Sang-Ouk Kim)

2:00 PM 2:30 PM **Lucia Beccai** 3D triboelectric nanogenerators via soft composites towards triboelectric powerless sensing

2:30 PM 2:45 PM **Chi Zhang** Tribotronics: A new field of triboelectric gated functional devices

2:45 PM 3:00 PM **Li Su** High performance Self-powered Triboelectric Ultraviolet photodetector based on PZT film with in-plane polarization

3:00 PM 3:15 PM **Usman Khan** Graphene based Tribotronic Transistors for Touch Sensing

3:15 PM 3:30 PM **Mingyuan Ma** Self-recovering triboelectric nanogenerator as active multifunctional sensors

3:30 PM 3:45 PM **Hyeon Jin Shin** Engineering of Triboelectrification by Surface Dipole and Surface Electronic State

3:45 PM 4:15 PM *Coffee break*

4:15 PM 6:30 PM **Poster Session - (1st part: Aula Convegni/ 2nd part: Corridoio Digitale)**

## Thursday 16 June 2016 - AULA POLIFUNZIONALE (AP)

### Session IV-AP (Aula Polifunzionale): Nanogenerators (Chairs: Max Migliorato, Caofeng Pan)

9:00 AM	9:30 AM	Henry Sodano	<b>ZnO nanowire interfaces for high strength multifunctional composites with embedded energy harvesting</b>
9:30 AM	10:00 AM	Jung Ho Ryu	<b>Magnetic energy harvesting by magnetoelectric composites</b>
10:00 AM	10:15 AM	David Spirito	Flexible nanogenerator based on ZnO conic-shaped nanostructures by Atomic Layer Deposition
10:15 AM	10:30 AM	Francesca Boughey	Piezoelectric Nanogenerators Based on Vertically Aligned Zinc Oxide Nanowires Electrodeposited within Porous Polycarbonate Templates
10:30 AM	10:45 AM	Han-Ki Kim	Phosphorus-doped amorphous p-type ZnO for p-n homojunction films for flexible piezoelectric Nanogenerators
10:45 AM	11:15 AM		<i>Coffee break</i>

### Session V-AP (Aula Polifunzionale): Piezoelectric and pyroelectric sensors (Chairs: Keon Jae Lee, Giuseppe Arrabito)

11:15 AM	11:45 AM	Chuan-Pu Liu	<b>Enhancement of piezotronic effects through alloying in compounds</b>
11:45 AM	12:00 PM	János Volk	Bottom contacted piezoelectric nanowire arrays for high resolution tactile mapping
12:00 PM	12:15 PM	Andrea Zappettini	Strain-sensitive carbon fiber composites
12:15 PM	12:30 PM	Elise Saoutieff	Interconnected array of piezoelectric nanowires integrated onto a microelectronics chip: the PIEZOMAT project
12:30 PM	12:45 PM	Edgar Leon Perez	On-chip integration of individually contacted piezoelectric nanowires for fingerprint sensing applications
12:45 PM	1:00 PM	Yonatan Calahorra	Scanning probe based electro-mechanical characterization of single PVDF-TrFE nanowires
1:00 PM	2:00 PM		<i>Lunch</i>

### Session VI-AP (Aula Polifunzionale): Piezoelectric Nanogenerators I Chairs: Xudong Wang, Omer Nour)

2:00 PM	2:15 PM	Noelle Gogneau	NanoGenerator Integrating Vertical Array of GaN Nanowires
2:15 PM	2:30 PM	Ran Tao	Electromechanical measurement of piezoelectric nanogenerators based on ZnO nanowires
2:30 PM	2:45 PM	Ayesha Sultana	Fabrication of PVDF-ZnS composite nanofiber mats by electrospinning for acoustic energy harvesting application
2:45 PM	3:00 PM	Mehebab Alam	Native Cellulose Based Hybrid Piezoelectric Generator for Mechanical Energy Harvesting Application
3:45 PM	4:15 PM		<i>Coffee break</i>
4:15 PM	6:30 PM		<b>Poster Session - (1st part: Aula Convegni/ 2nd part: Corridoio Digitale)</b>

## Friday 17 June 2016 - AULA CONVEGNI (AC)

### Session VII-AC (Aula Convegni): Piezoelectric Nanogenerators II (Chairs: Miso Kim, Caofeng Pan)

9:00 AM	9:30 AM	Mehmet Bayindir	Piezoelectric polymer nanoribbons produced by iterative size reduction technique for electronic skin, artificial hand and electro cardiac devices
9:30 AM	10:00 AM	Rusen Yang	Investigation of piezoelectric diphenylalanine peptide nanostructures and their energy applications
10:00 AM	10:30 AM	Massimo De Vittorio	Soft piezoelectric MEMS technologies for fluid flow energy harvesting
10:30 AM	10:45 AM	Omer Nour	Zinc oxide nanorods for low frequency electrical energy harvesters and sensor systems on flexible substrates
10:45 AM	11:15 AM		<i>Coffee break</i>

### Session VIII-AC (Aula Convegni): Nanogenerators and Piezotronics (general) (Chairs: Rusen Yang, Massimo De Vittorio)

11:15 AM	11:45 AM	Xiao-Sheng Zhang	Self-powered smart skin
11:45 AM	12:15 PM	Wenzhuo Wu	Piezotronics in 2D materials
12:15 PM	12:30 PM	Bojing Shi	Packaged self-powered system with universal connectors based on hybridized nanogenerators
12:30 PM	12:45 PM	Wei Tang	Implantable Self-Powered Low-Level Laser Cure System for Mouse Embryonic Osteoblasts' Proliferation and Differentiation
12:45 PM	1:00 PM		<b>Closing remarks</b>
1:00 PM	2:00 PM		<i>Lunch</i>

## Friday 17 June 2016 - AULA POLIFUNZIONALE (AP)

### Session VII-AP (Aula Polifunzionale): Triboelectric Nanogenerators IV (Chairs: Rusen Yang, Yue Zhang)

9:00 AM	9:30 AM	<b>Jung Ho Kim</b>	<b>Triboelectric-driven electrochemical polymerization of poly(3,4-ethylenedioxythiophene) for supercapacitors</b>
9:30 AM	9:45 AM	Wei Tang	Liquid metal electrode for high performance triboelectric nanogenerator
9:45 AM	10:00 AM	Wook Kim	Triboelectric nanogenerator based on gear mechanism with improved output performance
10:00 AM	10:15 AM	Chenguo Hu	Triboelectric generator based on checker-like two and honeycomb-like three electrode systems for harvesting mechanical energy in all directions
10:15 AM	10:30 AM	Divij Bhatia	Vibration analysis and design of contact-mode triboelectric nanogenerators
10:30 AM	10:45 AM	Arunkumar Chandrasekhar	Microcrystalline cellulose ingrained PDMS for intensifying triboelectric nanogenerator performance and a self powered locomotion detector
10:45 AM	11:15 AM		<i>Coffee break</i>