

KET\*

360

INNOVATE  
TOGETHER

*Focus on (\*) Key Enabling Technologies - nanotechnologies, advanced materials, advanced manufacturing and processing*

27th June 2019 - Strasbourg - FRANCE

**Project idea/ Field of expertise:**

Please insert text here

**Organisation Name:**

Politecnico di Torino

**Adressed challenge(s)/ PPP(s):**

Please insert text here

**Adressed topic(s) in Work Programme:**

LC-BAT-8-2020

# Politecnico di Torino

**58,2 Mio EUR**  
research revenue  
23% of POLITO Total revenue (253 Mio EUR)

**41 Mio EUR**  
From competitive calls

**17,2 Mio EUR**  
From research contracts with public and private sector



## A campus in continuous evolution

**SCHOOL OF ENGINEERING**  
Corso Duca degli Abruzzi  
Cittadella Politecnica

**SCHOOL OF ARCHITECTURE AND TERRITORIAL PLANNING**  
Castello del Valentino  
Via Morgari

**CITTADELLA OF DESIGN AND OF SUSTAINABLE MOBILITY**  
Mirafiori

**SPECIALIZING MASTER AND LIFELONG LEARNING SCHOOL**  
Lingotto

**TORINO**

**WORLD**  
Valle d'Aosta, Biella, Alessandria, Mondovì, Italy, Uzbekistan, China

POLITECNICO DI TORINO

## International Research Grants



**214 European and International Projects**

64 Mio EUR  
--- since 2014

**167 EU Horizon 2020 Projects**  
36 coordinated

60 Mio EUR | 16% success rate among which

10 ERC  
European Research Council

25 MSCA  
Marie Skłodowska Curie Actions

108 IL-SC-JTI  
Industrial Leadership Societal Challenges e Joint Technology Initiative

12 Mio EUR

8.7 Mio EUR

36 Mio EUR

**3 EIT Communities**  
European Institute of Innovation & Technology

Inno Energy | EIT Digital | EIT Manufacturing

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## Industrial Leadership, Societal Challenges and JTI projects

### TRANSPORT

- New fuel systems for tiltrotor (DEFENDER)
- Shared mobility: potential benefits and real impacts (STARIS)
- Sonde digitali innovative per piccoli aeromobili (MIDAS)

### RESOURCE EFFICIENCY AND RAW MATERIALS

- Converting CO2 into chemicals (CELBICOM)

### SPACE

- Enhance scientific culture in satellite navigation (E-KnoT)
- Nanostructured solar cells for space (TFGO)
- Flying in the stratosphere (STRATORLY)

### Energy

- Hydrogen production from biogas (H2PRODUCTION)
- Clean Energy from wastewater using fuel cells (CLEANWATER)
- Smart meters for proactive consumers (SMARTMETER)
- Synergy between energy networks (E-ENERGY)
- Integrated systems based on H2 for clean energy storage in remote areas (H2STORAGE)

### NANOTECHNOLOGIES AND BIOENGINEERING

- Harmony among ions and drugs (MOZART)
- Smart nanobiomaterials and 3D technologies for active aging (GROTTO)

14 Coordinated projects

POLITECNICO DI TORINO

# Materials for energy storage and conversion devices & Electrochemical characterization

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 ... ..

Lithium-based battery materials: electrodes, polymer electrolytes, cell assembly, electrochemical characterisation

Paper battery concept: from components to pre-industrialisation

Sodium-based battery materials

Photovoltaics: DSSCs, photoelectrochromics, perovskites

Integrated devices

**Nanostructured electrodes**

**Flexible TiO<sub>2</sub> nanotube electrodes**

**Pouch cell assembly/testing**

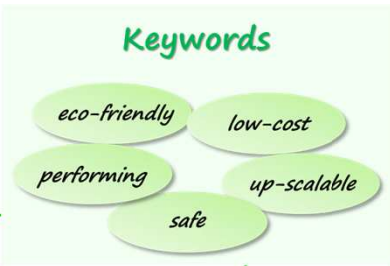
**Polymer electrolytes**

**Aqueous DSSCs**

**Perovskite solar cells**

**Photoelectrochromics**

**Flexible floating polymeric DSSC**



**Group for Applied Materials and Electrochemistry**

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<https://www.facebook.com/GAMELabPolITO>

**SCIENTIFIC REPORTS**  
 Super Soft All-Ethylene Oxide Polymer Electrolyte for Safe All-Solid Lithium Batteries  
 Gerbaldi, Claudio; Nair, Jijesh R.; Belli, Federico; et al.  
 Received: 27 July 2015  
 Accepted: 21 December 2015  
 Published: 21 January 2016

**ACS APPLIED ENERGY MATERIALS**  
 UV-Cross-Linked Composite Polymer Electrolyte for High-Rate, Ambient Temperature Lithium Batteries  
 Falco, Marisa; Castro, Laurent; Nair, Jijesh R.; Belli, Federico; et al.  
 Received: 15 October 2015  
 Accepted: 12 November 2015  
 Published: 12 December 2015

**LANGMUIR**  
 Understanding the Effect of UV-Induced Cross-Linking on the Physicochemical Properties of Highly Performing PEO/LITFSI-Based Polymer Electrolytes  
 Falco, Marisa; Simari, Chiara; Ferraro, Margherita; Nair, Jijesh R.; et al.  
 Received: 15 October 2015  
 Accepted: 12 November 2015  
 Published: 12 December 2015

**ACS Energy Letters**  
 Single-Ion Conducting Polymer Electrolytes for Lithium Metal Polymer Batteries that Operate at Ambient Temperature  
 Pavanelli, Luca; Shiplon, Alexander S.; Belli, Federico; Nair, Jijesh R.; et al.  
 Received: 15 October 2015  
 Accepted: 12 November 2015  
 Published: 12 December 2015

**ChemPubSoc Europe**  
 Photopolymer Electrolytes for Sustainable, Upscalable, Safe, and Ambient-Temperature Sodium-Ion Secondary Batteries  
 Gerbaldi, Claudio; Falco, Marisa; Colò, Francesca; Nair, Jijesh R.; et al.

# Contact details

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