February 2018

POLITECNICO
DI TORINO

Politecnico di Torino at a glance

From the past to the future

Our history in few steps

1859 — Technical School for Engineers

1862 — Italian Industry Museum

1958 — Corso Duca degli Abruzzi: Campus opening

2009 — 150 years of “Polytechnic culture”

1859-2009
150 anni di Cultura Politecnica

1861

Unification of Italy

1906

Regio Politecnico di Torino

1991

Cittadella Politecnica Campus: site construction opening

Today

2017 University Ranking
QS WORLD UNIVERSITY RANKINGS
by Faculty
52 Engineering and Technology
by Subject Europe
16 Architecture / Built Environment
9 Civil and Structural Engineering
by Subject World
46 Architecture / Built Environment
35 Civil and Structural Engineering
POLITECNICO DI TORINO

2018 Graduate Employability Ranking
QS GRADUATE EMPLOYABILITY RANKINGS
121 -130
Overall
by Indicator
World
1
Graduate Employment Rate
POLITECNICO DI TORINO

The campus

NYMEZIDE
EUROPE
ASIA
NORTH AMERICA
AFRICA
SOUTH AMERICA
AUSTRALIA

A campus in continuous evolution

SCHOOL OF ENGINEERING

Corso Duca degli Abruzzi

Cittadella Politecnica

SCHOOL OF ARCHITECTURE

Castello del Valentino

CITTADELLA OF DESIGN AND OF SUSTAINABLE MOBILITY

Mirafiori

SPECIALIZING MASTER AND LIFELONG LEARNING SCHOOL

Lingotto

TURIN

WORLD

POLITECNICO DI **TO**RINO

Students and teaching activities

Students

AY 2016/2017

33 000	**Students enrolled in Bachelor's and Master's degree programmes**
445	**Students enrolled in I and II level Specializing Masters programmes** Lifelong Learning courses Training courses for businesses
640	**PhD candidates**
58%	**Students from outside Piemonte** 43% italiani residenti fuori Piemonte 15% international students
5 300	**First-year students** | AY 2017/2018

Course catalogue

AY 2017/2018

22	**Bachelor's degree programmes** 3 in Architecture | 19 in Engineering
29	**Master's degree programmes** 6 in Architecture | 23 in Engineering
19	**Educational paths taught completely in English**
3	**I level Specializing Masters programme**
15	**II level Specializing Masters programmes**
1	**Interuniversity Specializing Masters programme**
33	**Lifelong Learning courses**
16	**PhD programmes** including **5** in cooperation with other universities (**3**) | research centres (**2**)
1	**Qualità & Impegno** (Quality & Commitment) programme for Bachelor's students
1	**Alta Scuola Politecnica** (ASP) for Master's students

Graduates 2016

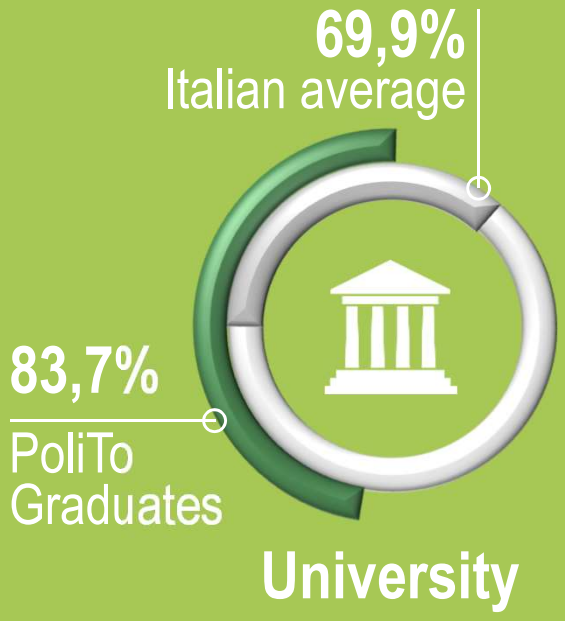
6 533

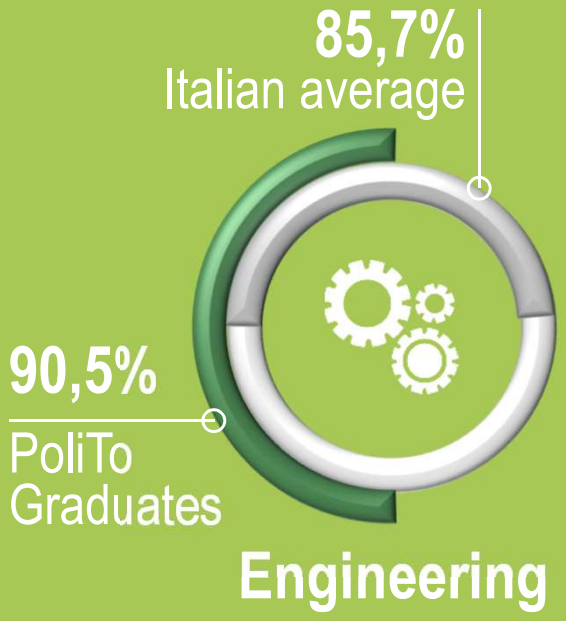
Bachelor's degree

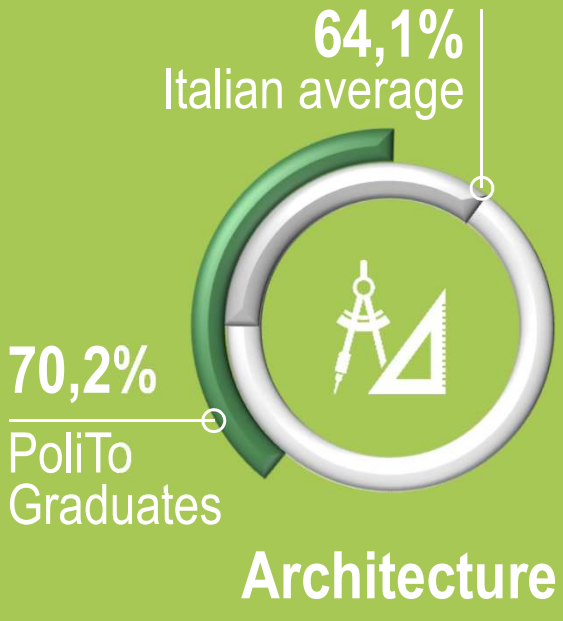
3 206 Average age **24**

Master's degree

3 327 Average age **26**







Employment rate of master's graduates one year after graduation

Almalaurea 2017,
def. Istat - Work force

Specializing Master's Programmes and Lifelong Learning School

The School's programmes are designed to meet the need for high-level technical training that boosts the knowledge base already acquired by students during the traditional degree paths

The programmes also actively address the constantly changing requirements of the world of work, support and develop students' competitiveness and entrepreneurial skills

PhD programme

Out of the **640** PhD candidates

SCHOLARSHIPS

85% of PhD candidates receive a scholarship

The PhD grant is **30%** higher than national average levels

30% of PhD scholarships are funded by external non-academic bodies

15 PhD programmes offered with the apprenticeship scheme

INTERNATIONAL PhD CANDIDATES

25%

PhD PROGRAMMES DURATION

3 years

1/3 learning activity

2/3 research activity

EXCELLENCE OF PhD CANDIDATES

85% of PhD candidates have a Master's degree with final grade of **105/110**

60% with **110/110**

An international university

International agreements

Carnegie Mellon University

École Polytechnique

University of Tokyo

MIT Massachusetts Institute of Technology

UC Berkeley

University of Illinois at Urbana Champaign

Princeton University

Politecnico di Torino

TTPU Uzbekistan

Tongji University Shanghai

South China University of Technology

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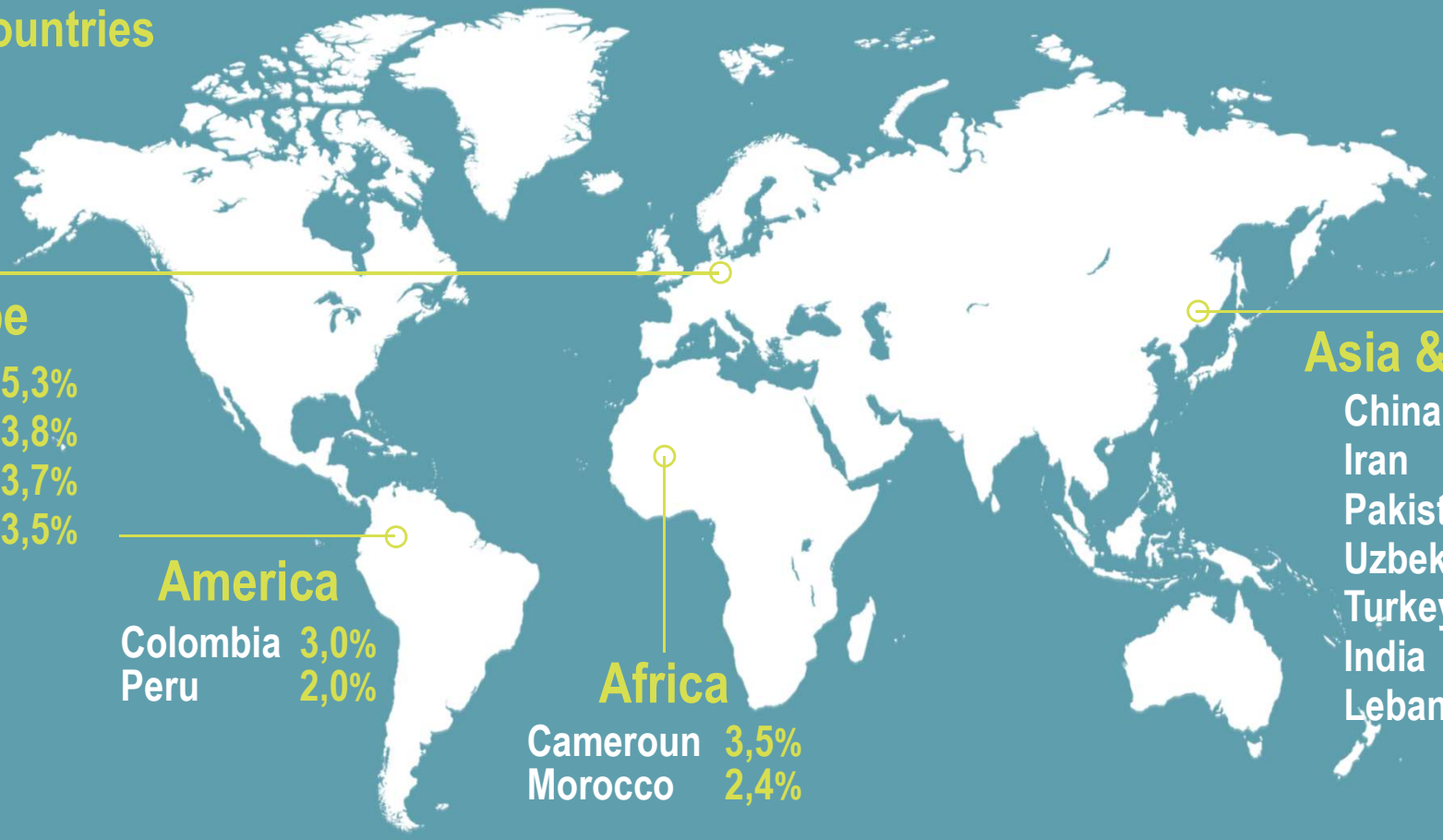
INTERNATIONAL AGREEMENTS

POLITECNICO DI **TO**RINO

Students' countries of origin

PoliTo students come from **114 countries**



Europe

Romania	5,3%
Spain	3,8%
Albania	3,7%
France	3,5%

America

Colombia	3,0%
Peru	2,0%

Africa

Cameroun	3,5%
Morocco	2,4%

Asia & Oceania

China	23,7%
Iran	7,6%
Pakistan	6,9%
Uzbekistan	3,3%
Turkey	2,4%
India	2,2%
Lebanon	2,1%

Other countries **24,6%**

POLITECNICO DI **TO**RINO

International context

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INTERNATIONAL AGREEMENTS

- 159 Europe
- 114 Asia
- 92 South America
- 35 North America
- 29 Africa
- 29 Middle East
- 5 Oceania

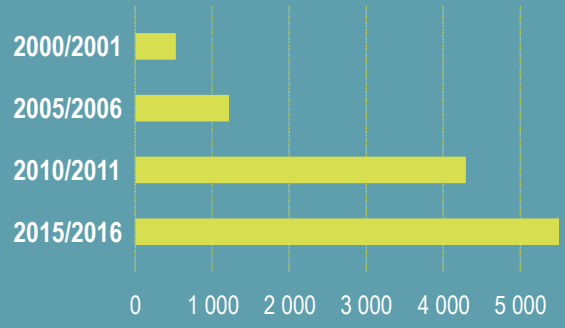
MOBILITY STUDENTS AY 2016/17

- 802 Incoming students
- 1 163 Outgoing students

470
Erasmus + EU PROGRAMME COUNTRIES agreements

129
Double degree and student mobility agreements

INTERNATIONAL STUDENTS



International Networks

CESAER — Conference of European Schools for Advanced Engineering Education and Research

CLUSTER (LEADING UNIVERSITIES OF SCIENCE AND TECHNOLOGY) — Consortium Linking Universities of Science and Technology for Education and Research

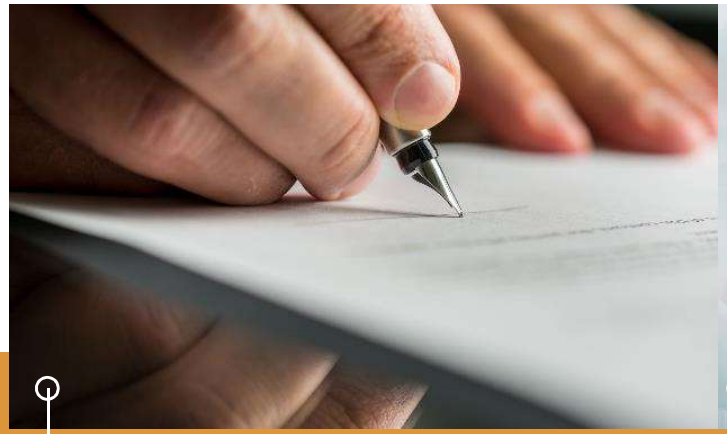
EUA (European University Association) — European University Association

SEFI (European Society for Engineering Education) — European Society for Engineering Education

TOP INDUSTRIAL MANAGERS EUROPE — Top Industrial Managers for Europe

Research

Research projects



RESEARCH CONTRACTS WITH THE PUBLIC AND PRIVATE SECTOR

18,9 Mio EUR --- 2016

RESEARCH GRANTS

127 UE H2020 Projects
47 Mio EUR

40 International Projects
4 Mio EUR

207 National and Regional Projects
23 Mio EUR

NATIONAL INITIATIVES

10 Smart Cities projects

17 PRIN projects --- 2015

5 Regional projects:
Piattaforme Tecnologiche
Fabbrica Intelligente

10 National Technology Clusters

Research projects

EUROPEAN INITIATIVES

12 **ERC - funded projects** (European Research Council), of which

10 with the Principal Investigator from PoliTo

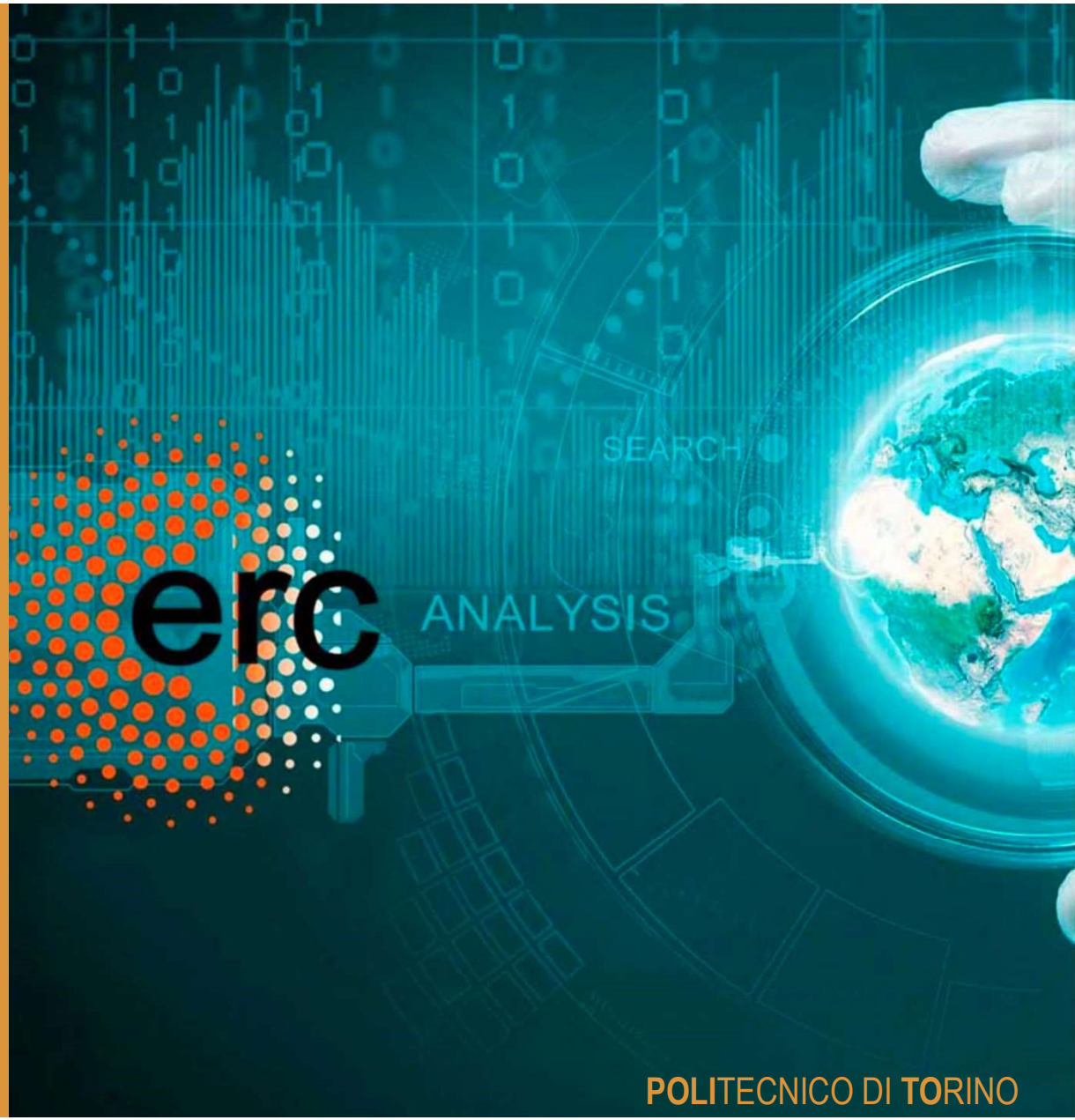
2 with PoliTo as a “Partner institution”

2 **ICT FET FLAGSHIPS INITIATIVES UE**

-- Graphene

-- Human Brain Project

PolitTo is the only Italian partner participating in both projects



Research projects

INTERNATIONALIZATION AND PROMOTION OF RESEARCH

34	Projects funded by the **Call for Joint Projects for the Internationalization of Research** (since 2013)
52	Projects supported by the **MITOR** call for proposals between 2009 and 2016
14	Projects funded by the call for proposals **Metti in Rete la tua idea di ricerca**
9	Projects funded by the call for proposals **La Ricerca dei Talenti**

Extra-European cooperation projects funded by the Siebel Energy Institute, federal authorities such as NIH (National Institute of Health) and NIST (National Institute of Standards and Technology)

Partner of EIT (European Institute of Technology) **Inno Energy and Digital KIC** (**K**nowledge **I**nnovation **C**ommunity)

Mobility of researchers

28

Visiting professor applications approved in 2016

18

“Joint research projects with top universities”

22

H2020 Marie Skłodowska-Curie projects

HR Excellence in Research

In November 2013 Politecnico di Torino was awarded the **HR Excellence in Research logo** by the European Commission for the University's commitment to providing international researchers with positive and challenging working conditions and for the implementation of the principles of the European Charter for Researchers & Code of Conduct for the Recruitment of Researchers

Progetti ERC

European Research Council

BOOST

Tricking bone cells to fight osteoporosis

CRISP

The challenge of compressing and processing big data

CWASI

Coping with water scarcity in a globalized world

Progetti ERC

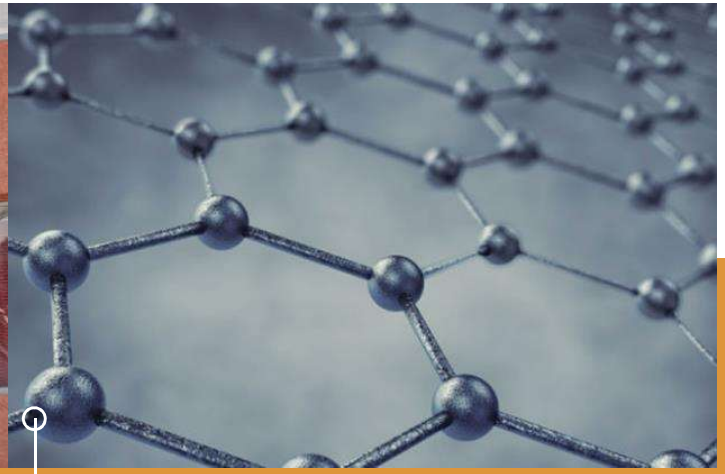
European Research Council

IDEal reSCUE

Modelling the complexity of emergencies

IDEAL SENSOR

Building monitoring in emergency situations

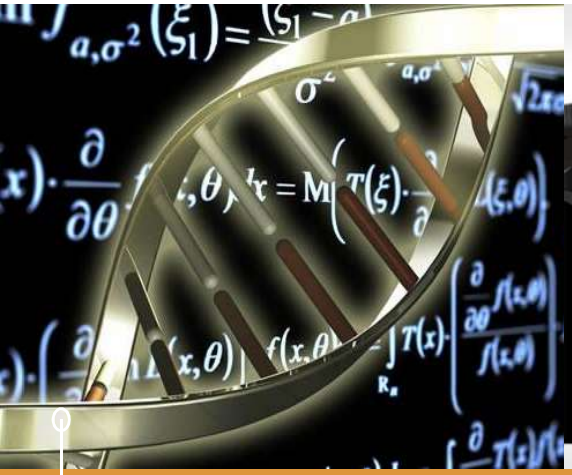


INTHERM

Heat conductive nanomaterials based on graphene

Progetti ERC

European Research Council



OPTINF

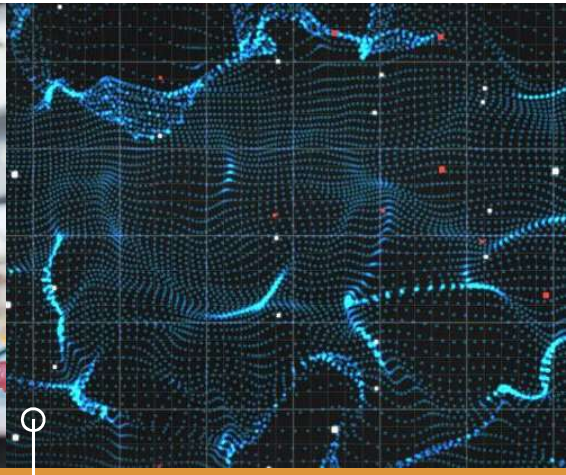
From disordered systems physics to biological data analysis

ToothPic

Even digital cameras have fingerprints

TrojaNanoHorse

A trojan horse to fight cancer cells



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A year of calculations in just a second: electromagnetic modeling in real time

Future Emerging Technologies

FET flagships

Graphene

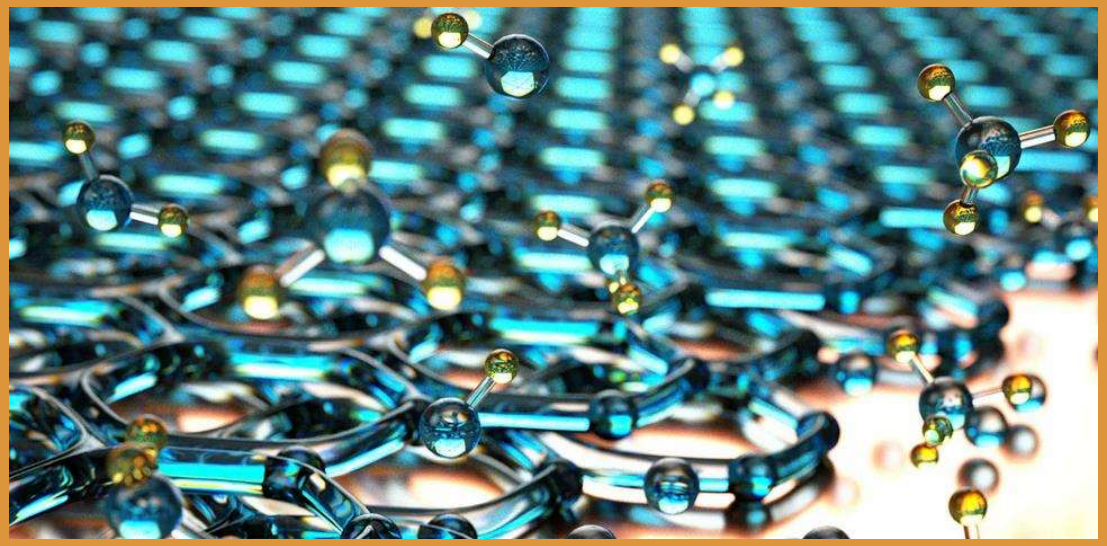
The Graphene Flagship is tasked with bringing together academic and industrial researchers to take graphene from the realm of academic laboratories into European society over a period of 10 years, thus generating economic growth, new jobs and opportunities

The core consortium consists of over 150 academic and industrial research groups in 23 countries

Human Brain Project

The Human Brain Project (HBP) is run by a consortium of 116 research organizations

HBP aims to put in place a cutting-edge, ICT-based scientific Research Infrastructure for brain research, cognitive neuroscience and brain-inspired computing



Technology Transfer

Interdepartmental Laboratory for Technology Transfer

The Interdepartmental Laboratory for Technology Transfer seeks to enhance the results of research and to improve the University's capacity to assess the industrial potential and commercial value of the new technologies generated through research

The Innovation and Entrepreneurship Centre - EIC

The research work carried out by the EIC Centre is strongly focused on issues of

technology transfer,

innovation and

entrepreneurship

III Missione Knowledge Sharing

KNOWLEDGE GENERATION AND TRAINING ACTIVITIES

European Innovation Academy
over 1,000 students from 81 countries in 2 years

Innovation For Change
in cooperation with CERN and Fondazione Agnelli

CLIK (Contamination Lab & Innovation Kitchen)

c.lab TORINO (with Università di Torino)

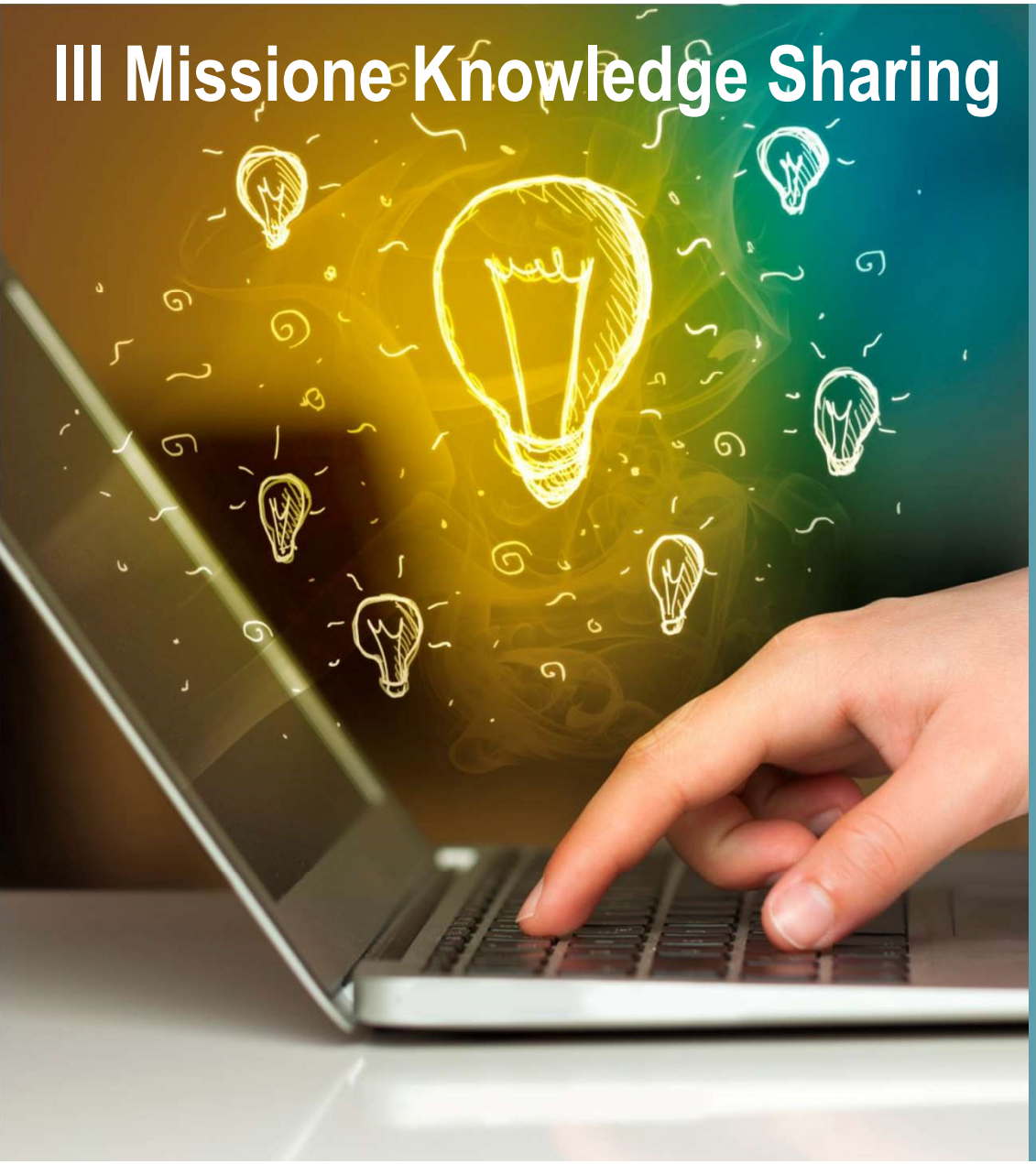
III Missione Knowledge Sharing

IPRs AND DEVELOPMENT OF NEW TECHNOLOGIES

601 **Patents**
of which **34% in joint-ownership** with companies or international bodies

252 **Active patents**
(42% of the portfolio), of which **32% in joint-ownership** with companies or international bodies

III Missione Knowledge Sharing



INVENTIONS BY SECTOR

- 11,5% Aeronautical, Aerospace and Automotive Eng.
- 2,8% Architecture and Design
- 13,8% Biomedical, Chemical and Pharmaceutical Eng.
- 7,1% Energy and renewable sources
- 12,6% Physical Eng., Materials and Nanotechnologies
- 25,3% Computer Engineering, Electronic and Communications Engineering
- 9,1% Civil, Environmental and Building Engineering
- 17,4% Industrial, Mechanical and Mechatronics Engineering
- 0,4% Mathematical Sciences

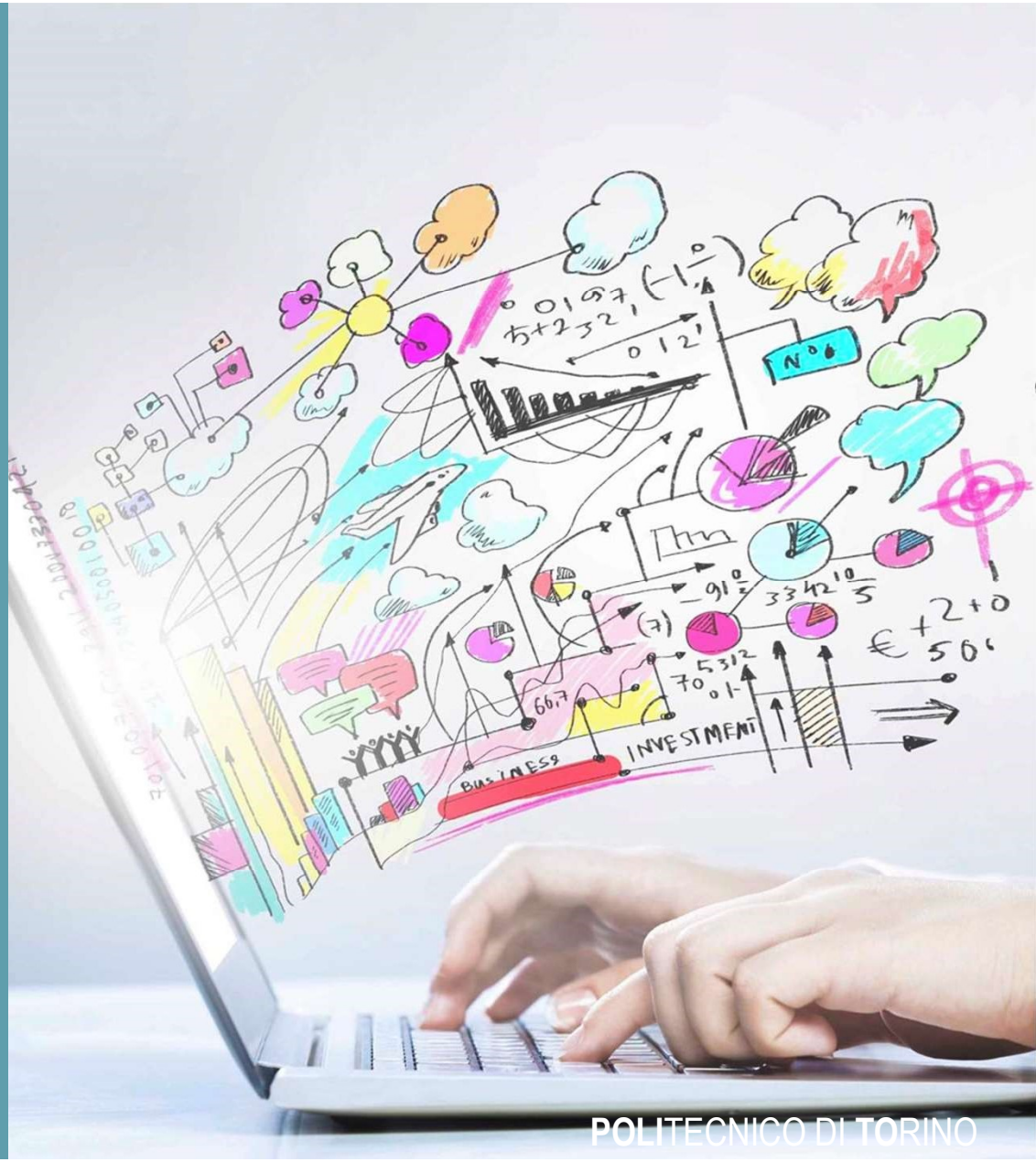
- **PoC Call: 1.2 M € since 2016, 3 calls, 31 technologies funded**
- **2 ERC funded technologies received a PoC grant / 2 ERC Proof of Concept grants**
- **2.48 M € revenue** in 2014-17 for exploitation, patent development and Proof of Concept

POLITECNICO DI **TO**RINO

III Missione Knowledge Sharing

SPIN-OFF

51	Spin-offs created so far
23	Spin-offs currently operational
2 Mio EUR	**Funding from investors** for spin-off initiatives (2016-2017)
27	**Patents licensed** by Politecnico to spin-offs



III Missione Knowledge Sharing

AGREEMENTS AND PARTNERSHIPS WITH PRIVATE COMPANIES

- **Partnership Agreements** with **36 companies**
- The **www.knowledge-share.eu platform**, created to promote Politecnico patents to private companies. It is now open to all Italian public universities and research centers. It has 20 member universities and over 200 patents
- **TECHSHARE DAY**
- **BROAD P.I.T.T. 2**

INTERNATIONAL RELATIONS FOR TECHNOLOGY TRANSFER

A global academic network to foster technology transfer activities

- **Global Venture Lab di UC Berkeley**
- **Australian eChallenge**
- **InnoWomEnt** (Innovative Women Entrepreneurs)
- **CLUSTER** (Consortium Linking Universities of Science and Technology for Education and Research)

Public Engagement Activities 2016

PUBLIC ENGAGEMENT ACTIVITIES 2016

1 612	Publications in scientific journals
972	Contributions to scientific conferences published
+ 400	Conferences and seminars organized
+ 600	Students of our Schools involved in outreach activities

Departments

Departments

INDUSTRIAL ENGINEERING

DENERG
Energy

DIMEAS
Mechanical and Aerospace Engineering

DISAT
Applied Science and Technology

INFORMATION TECHNOLOGIES

DAUIN
Control and Computer Engineering

DET
Electronics and Telecommunications

INDUSTRIAL ENGINEERING AND MANAGEMENT AND MATHEMATICS FOR ENG.

DIGEP
Management and Production Engineering

DISMA
Mathematical Sciences

CIVIL AND ENVIRONMENTAL ENG., ARCHITECTURE AND INDUSTRIAL DESIGN

DAD
Architecture and Design

DIATI
Environment, Land and Infrastructure Engineering

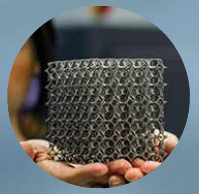
DISEG
Structural, Geotechnical and Building Engineering

DIST (Interuniversity Department)
Regional and Urban Studies and Planning

POLITECNICO DI **TO**RINO

Interdepartmental Centres

CARS@PoliTO
Center for Automotive Research and Sustainable mobility



IAM@PoliTO
Integrated Additive Manufacturing

Ec-L | Energy Center Lab

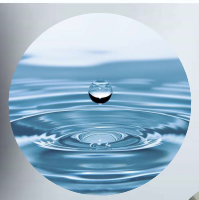
PoliTo^{BIO}Med Lab
Biomedical Engineering Lab

FULL | The Future Urban Legacy Lab

SmartData@PoliTO
Big Data and Data Science Laboratory

Top Down

Bottom Up



CWC | CleanWater Center@PoliTO

PhotoNext

J-Tech@PoliTO
Advanced Joining Technology

PIC4SeR | PoliTO Interdepartmental Centre for Service Robotics

PEIC | Power Electronics Innovation Center

POLITECNICO DI TORINO

Siebel Energy Institute

SIEBEL ENERGY INSTITUTE

Global consortium for innovative and collaborative
Energy Research

Carnegie Mellon University

École polytechnique

Massachusetts Institute of Technology

University of Tokyo

UC - Berkeley

Politecnico di Torino

Princeton University

University of Illinois at Urbana Champaign

Tsinghua University

The Institute grants SEED FUNDINGS for cooperative and innovative research proposals in data analytics, including statistical analysis and machine learning, to accelerate advancements in the safety, security, reliability, efficiency, and environmental integrity of modern energy systems

POLITECNICO DI TORINO

Siebel Energy Institute

SIEBEL ENERGY INSTITUTE

26

PoliTo Proposal

10

PoliTo Projects

≈ 200.000 $

Total Funding*

*funding received by 31/12/2016

POLITECNICO DI TORINO

I3P

I3P The Innovative Enterprise Incubator

2016 results

UBI INDEX University Business Incubator of 2014 GLOBAL TOP 25

600 Ideas accepted

145 Projects launched

49 Startups launched

15 Startups admitted

2,90 Mio EUR
Investments | Seed

5,15 Mio EUR
Investments | Early Stage

Startup sectors

10% Biotech

15% Cleantech

37% ICT / Internet

37% Industrial / Automation

since 1999

Incubatore Imprese Innovative Politecnico Torino

TreataBit
The playground for new media entrepreneurs by I3P

1999 — 2011

1 600 jobs

POLITECNICO DI **TOR**INO

The Sustainable Campus

Green Team

a group of faculty members, students and employees, which encourages the University to adopt environmental and social policies in accordance with the guidelines of the H2020-Strategic Plan

FIELDS

Energy and buildings
Mobility and transport
Urban outreach
Food, water and waste
Green procurement

8 Mio EUR
Investments

Since 2015, PoliTo has been a member of the ISCN Network (International Sustainable Campus Network) and among the founders of the RUS Network (Rete delle Università per lo Sviluppo Sostenibile), and it coordinates the RUS Energy Table

POLITECNICO DI **TO**RINO

The University Single Budget

The University Single Budget 2017

Planning investments of over **50** Mio EUR

- **54%** MIUR funds
- **13%** Student fees
- **7%** On-demand research and technology transfer
- **7%** UE and international research funds
- **2%** Regional and local research funds
- **2%** Research funds by other organizations
- **2%** Research funds by MIUR and other Ministries
- **7%** Other funds
- **6%** Other contributions (except for MIUR)

POLITECNICO DI TORINO

Human capital

Human capital

TEACHING STAFF

225
Full Professors

373
Associate Professors

302
Researchers

28%
Female population

ADMINISTRATIVE STAFF

878
Staff members

60,3%
Female population

February 2018

POLITECNICO
DI TORINO

Politecnico di Torino at a glance