



INSTM

C o n s o r z i o
I n t e r u n i v e r s i t a r i o
N a z i o n a l e
p e r l a S c i e n z a e
T e c n o l o g i a
d e i M a t e r i a l i

INSTM, a consortium
for material science
and technology

 www.instm.it



INSTM:

- ≡ groups all the Italian Universities (50) where research on Materials is carried out**
- ≡ has about 2900 scientists affiliated**
- ≡ integrates a “critical mass” of knowledge**

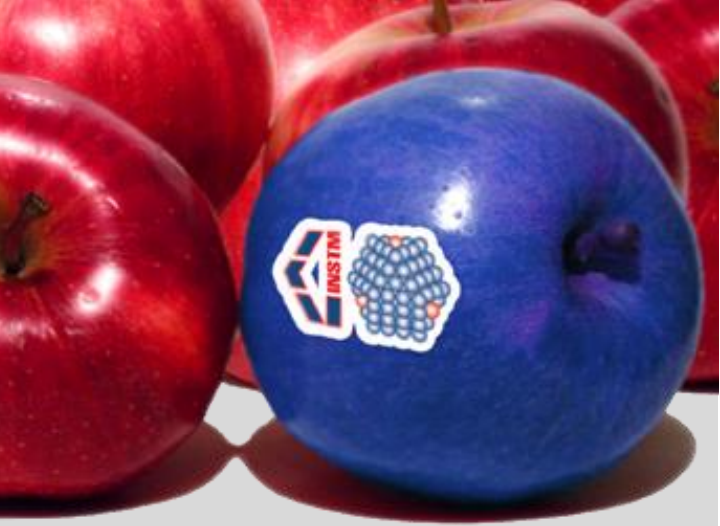
About INSTM



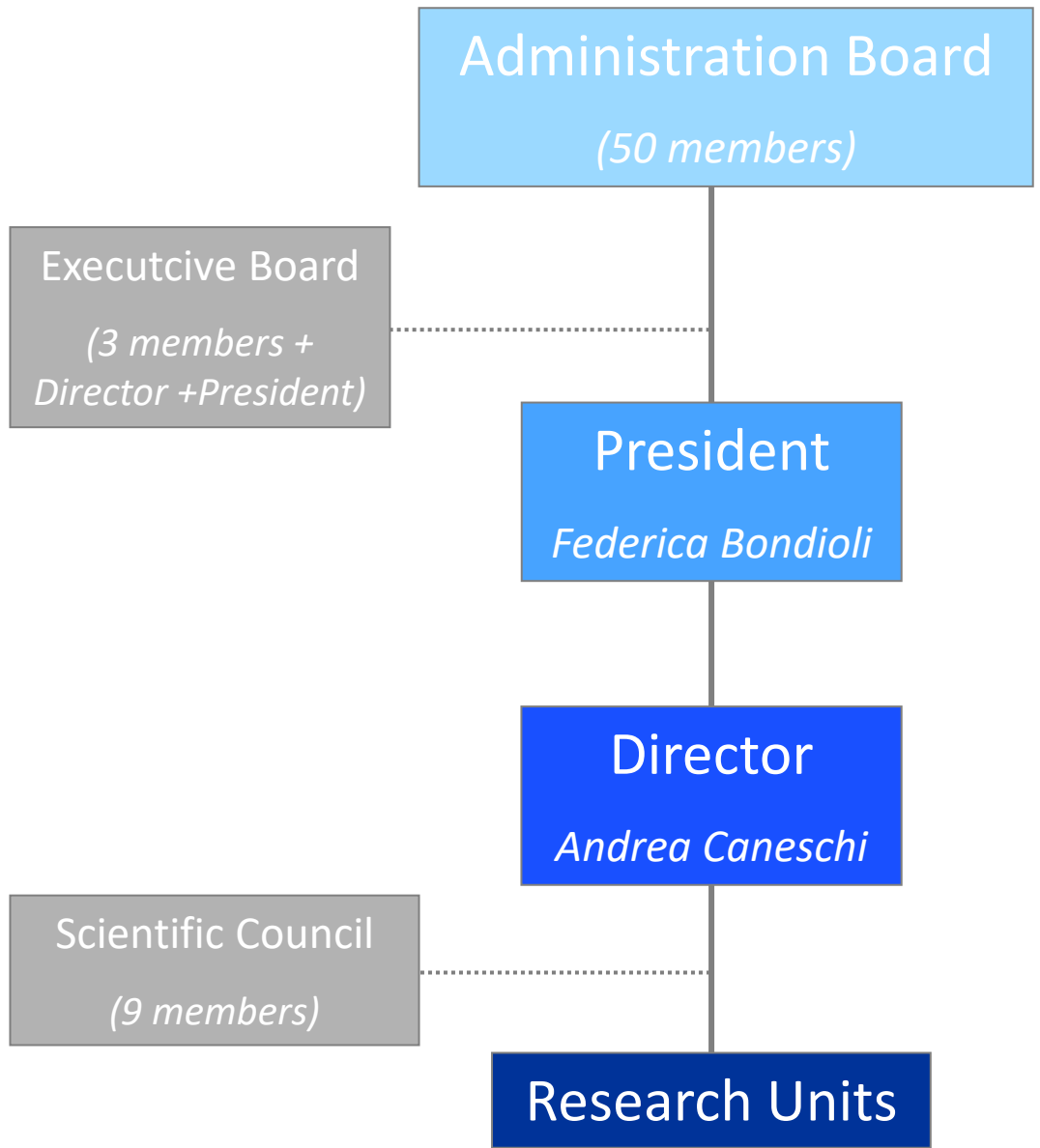
What INSTM aims
t o a c h i e v e

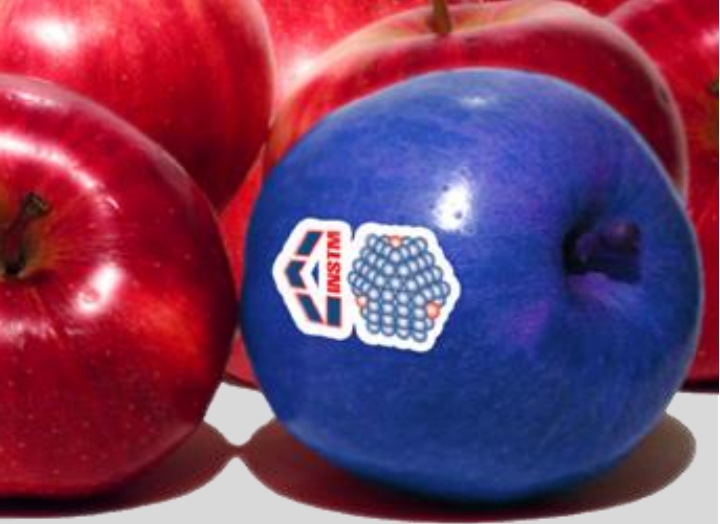
INSTM's missions:

- ≡ promotes and supports the research on Materials Science and Technology;
- ≡ develops and improves exchanges between Universities and Industries;
- ≡ supports technological transfer, spin-off activities, and training for enterprises;
- ≡ promotes the public understanding of Materials Science and Technology.



INSTM structure





INSTM SCIENTIFIC SECTIONS:

1. Materials and technologies for life and food sciences

2. Materials and technologies for Made in Italy, advanced manufacturing and aerospace

3. Materials and technologies for ecological transition: Energy and Sustainable Mobility.

4. Materials and technologies for green economy and circular economy

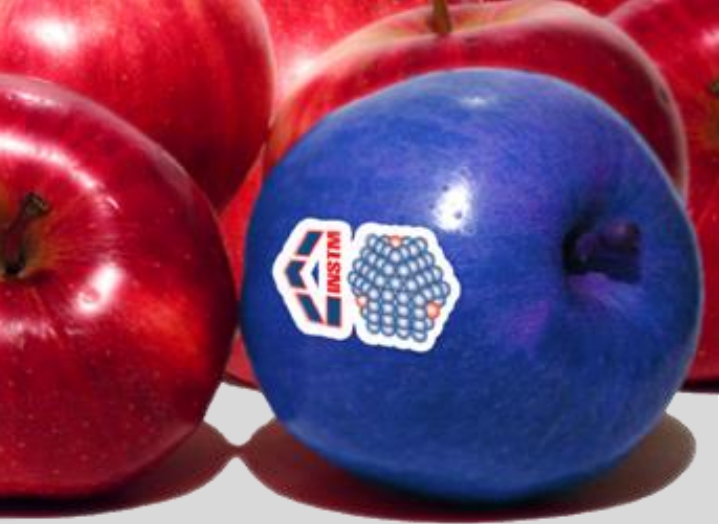
Comitato Tematico Organismi di Ricerca di SPRING: Prof. La Mantia

5. Materials and technologies for buildings and cultural heritage

INSTM AD HOC COMMITTEE:

- Computational calculus

INSTM scientific
network



INSTM Research Centres

1. Technologies for the transformation of polymer and composite materials

Coordinator: Prof. G. Mensitieri, Federico II University, Naples

2. Surfaces and nanostructured interphases

Coordinator: Prof. S. Bordiga, University of Turin

3. CRIMSON - Reference Centre for the modelling and simulation of molecular organisations and nanosystems

Coordinator: Prof. C. Zannoni, University of Bologna

4. Bioactive polymeric materials for biomedical and environmental applications

Coordinator: Prof. D. Puppi, University of Pisa

5. Research centre of nanosized materials for microelectronic and related applications

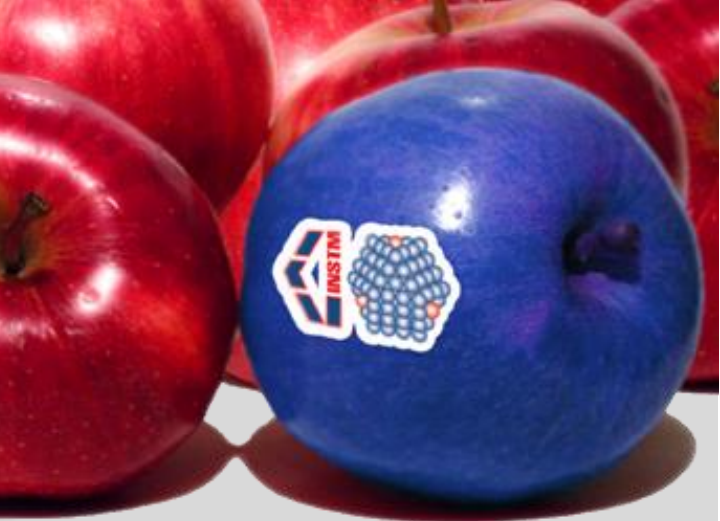
Coordinator: Prof. M.E. Fragalà, University of Catania

6. LINCE - Laboratory of technology and engineering of ceramic materials

Coordinator: Prof. L. Montanaro, Polytechnic of Turin

7. Reference Centre for controlled porosity materials

Coordinator: Prof. P. Innocenzi, University of Sassari



8. NIPLAB - Laboratory of nanocomposites and multifunctional polymeric hybrid materials

Coordinator: Prof. J. M. Kenny, University of Perugia

9. LAMM - Laboratory for molecular magnetism

Coordinator: Prof. R. Sessoli, University of Florence

10. CASPE - Laboratory of catalysts for sustainable production and energy

Coordinator: Prof. S. Perathoner, University of Messina

11. Semi-crystalline polymeric materials

Coordinator: Prof. G. Guerra, University of Salerno

12. LASCAMM - Laboratory of synthesis and characterization of organometallic-based molecular materials

Coordinator: Prof. I. Aiello, University of Calabria

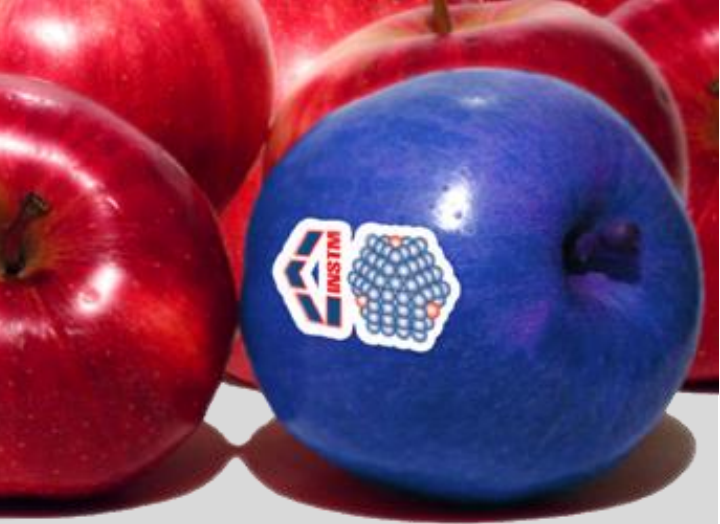
13. SKIES-VILLAGE - Science, Knowledge and Innovation for Earth and Space in a Virtual Italian Laboratory for Large Scale Applications in a Geographically-distributed Environment

Coordinatore: Prof. V. Barone, Scuola Normale di Pisa

INSTM Research
C e n t r e s



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14. LITS - Laboratory of surface treatments engineering
Coordinator: Prof. T. Valente, La Sapienza University, Rome

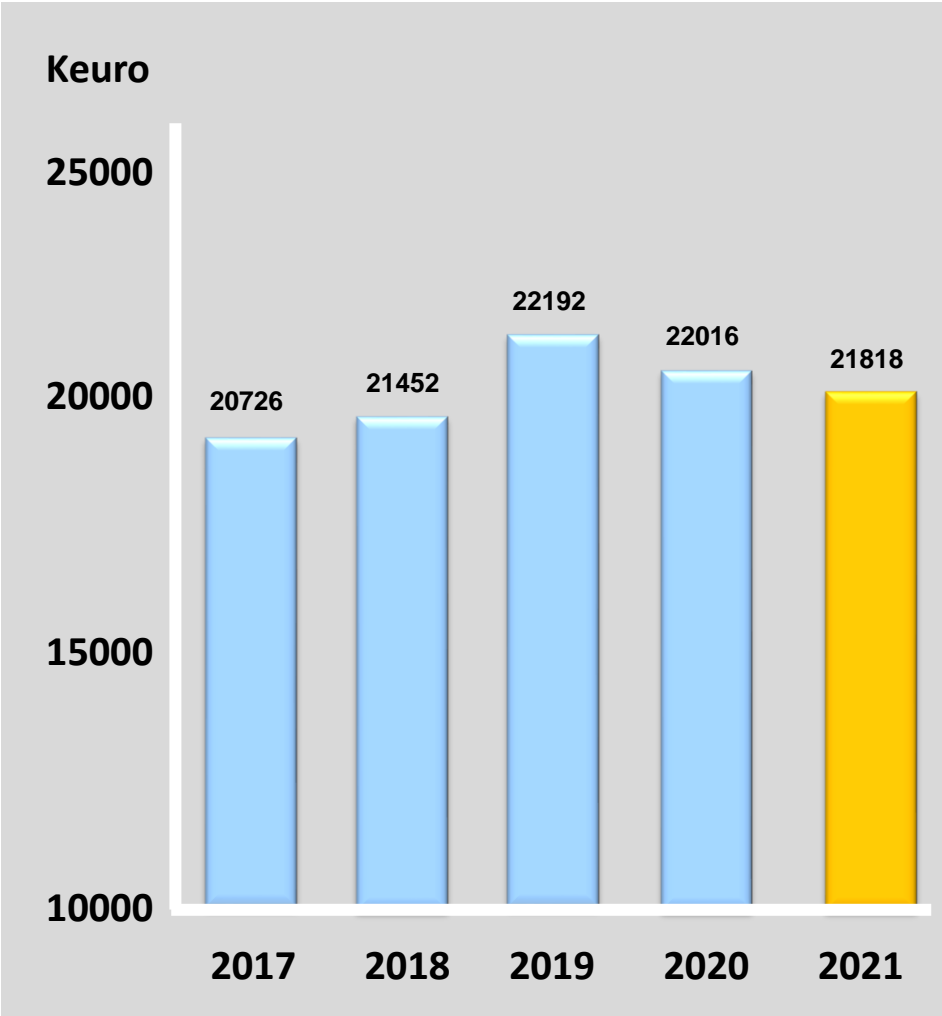
15. PREMIO - Centre for the preparation of innovative materials with optimised chemical-physical properties
Coordinator: Prof. L. Malavasi, University of Pavia

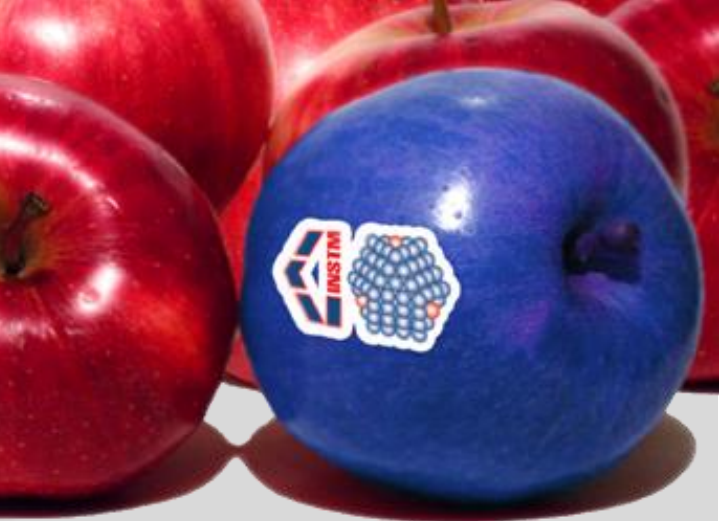
16. GISEL - National Centre of Reference for Electrochemical Energy Storage Systems
Coordinator: Prof. C. Gerbaldi, Turin Polytechnic

INSTM Research
C e n t r e s

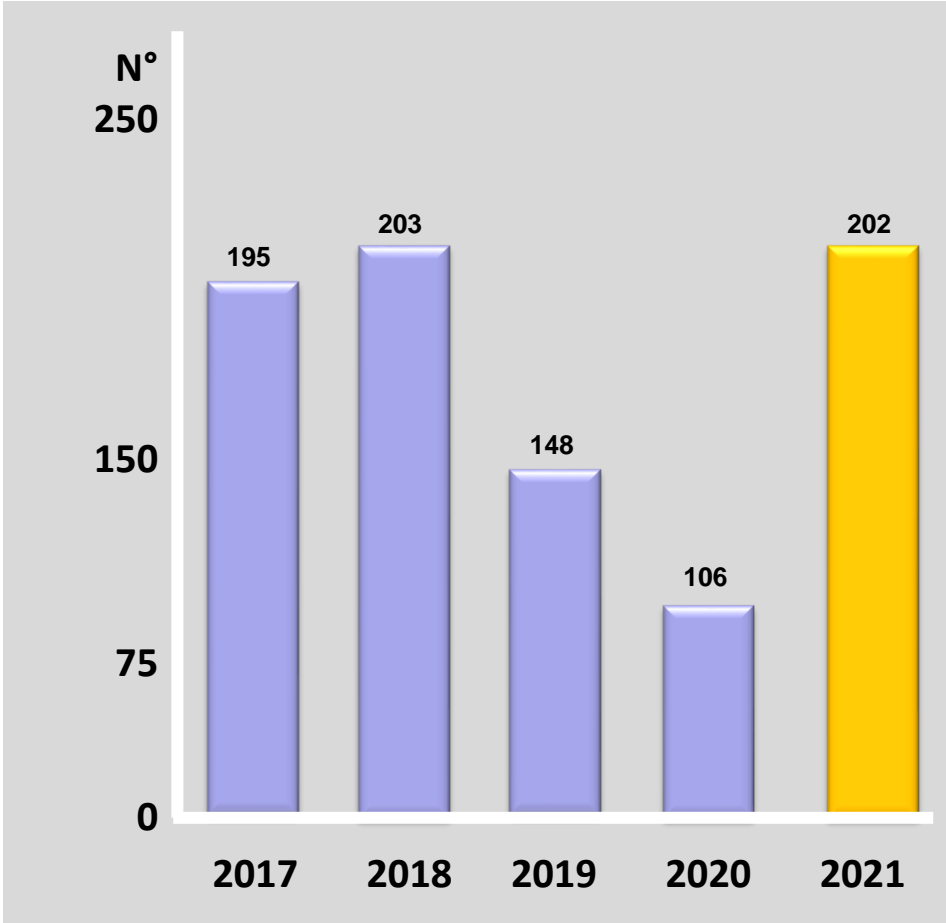


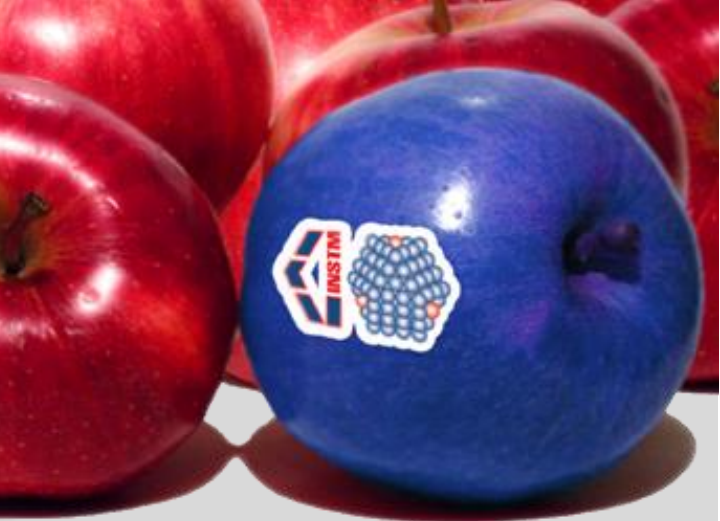
INSTM annual budget



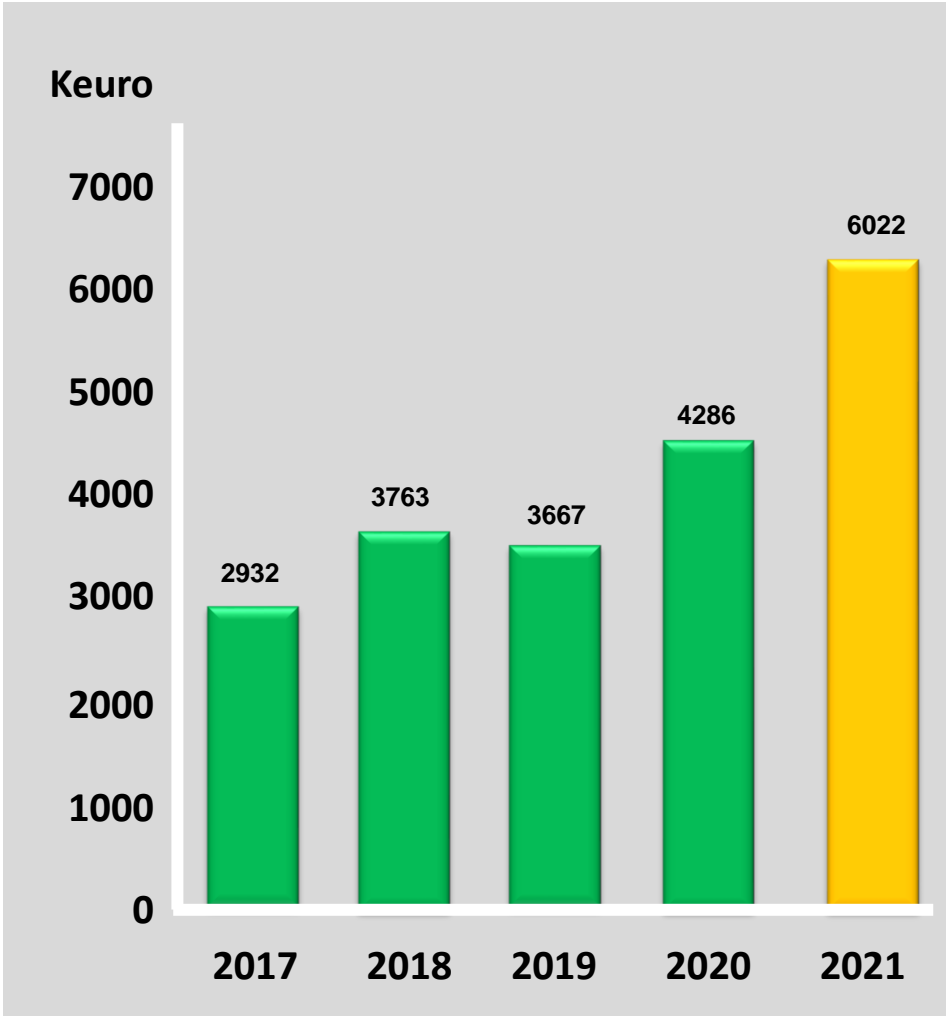


INSTM industrial contracts - 1





INSTM industrial contracts - 2





Numbers of patents applications

2019 34: 14 Italian, 6 CA, JP, UE, USA, PCT

2020 26: 15 Italian, 7 CA, JP, UE, USA, PCT

2021 25: 15 Italian, 7 CA, JP, UE, USA, PCT

INSTM patents
applications



I N S T M
p u b l i c a t i o n s

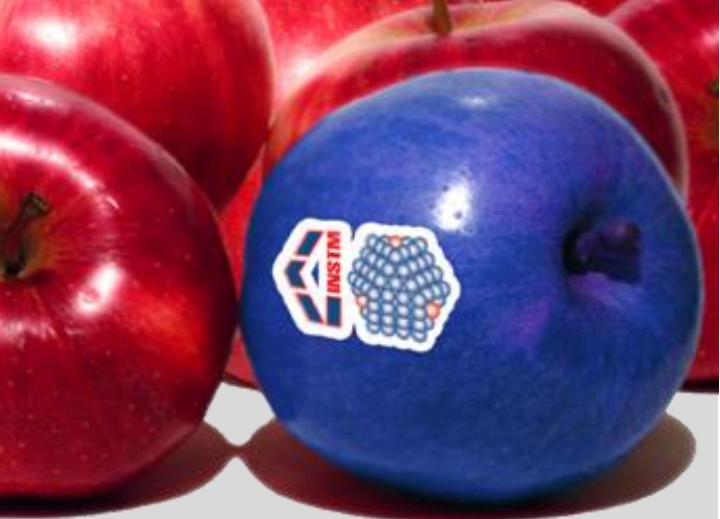
Numbers of publications*

2019 **708**

2020 **827**

2021 **889**

* ISI WEB of Science



ANVUR (National Agency for the Evaluation of Research and Universities) evaluation of INSTM research (2011-2014).

Area 03 – Chemical Sciences, Interuniversity Consortia
Category:

Ranking **2nd**

Excellent
research
products **92,2%**

Area 09 – Industrial and Interuniversity Engineering,
Consortia Category:

Ranking **1st**

Excellent
research
products **62,1%**

VQR 2015-2019:

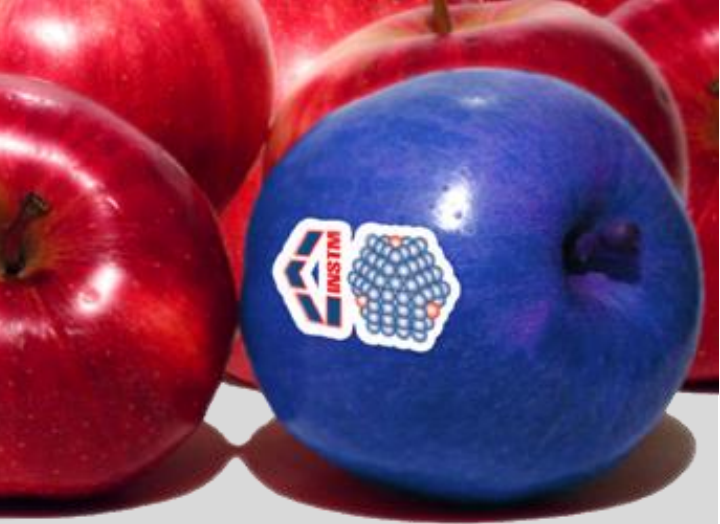
VQR 2011-2014



INSTM a success in the world of r e s e a r c h

INSTM is a leading research organisation, both in Italy and Europe-wide. Since 1992, **it has played a valuable role with respect to the funding agencies, while providing a "one-stop-shop" for its affiliates**, enabling them to access funding for their activities. It has also participated actively in promoting its preferences regarding areas of research to be considered for funding.

To date, the Consortium has participated in **hundreds of projects, most of them Italian**, and so has contributed significantly to Italy's scientific progress, its research quality and its innovative capabilities. **At European level, and since its beginnings, INSTM has been involved in several projects.** These have been evenly distributed between the 4th, 5th, 6th, 7th, H2020 and Horizon Europe Framework Programmes: long-term initiatives through which the European Union has developed and met the needs of its research policies, and which also form the main instruments for funding European level projects.



INSTM in FP6: Networks of Excellence

1. Molecular approach to nanomagnets and multifunctional materials (MAGMANet, concluded in 2009)

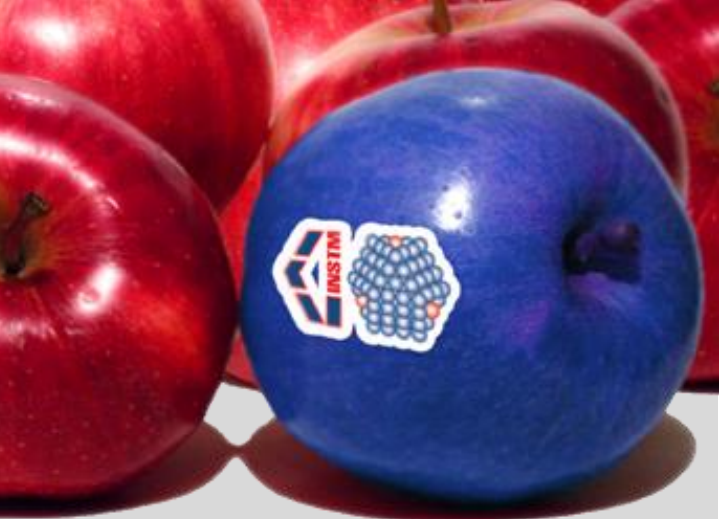
INSTM Coordinator: Prof. D. Gatteschi, University of Florence

2. Integrated design of catalytic nanomaterials for sustainable production (IDECAT, concluded in 2010)

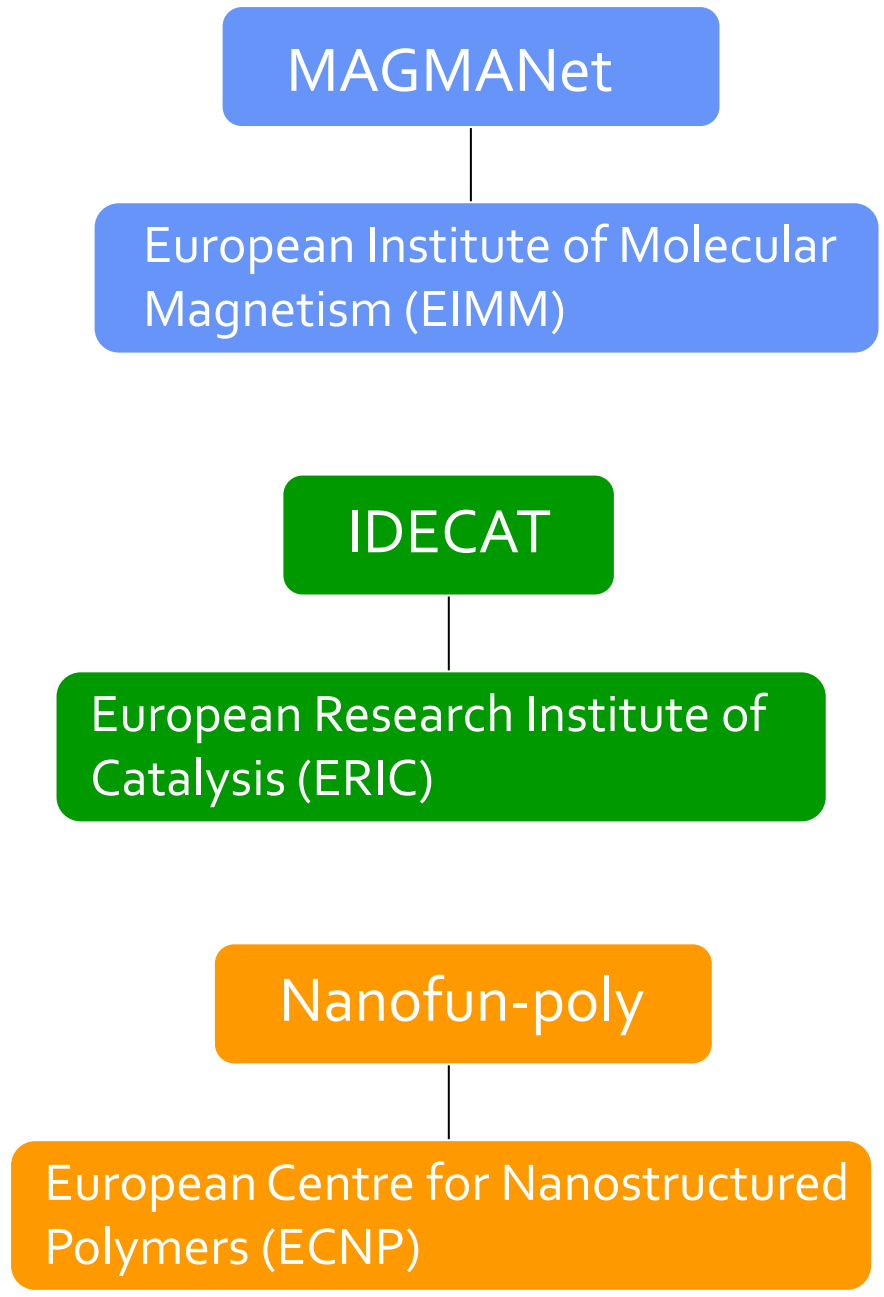
INSTM Coordinator: Prof. G. Centi, University of Messina

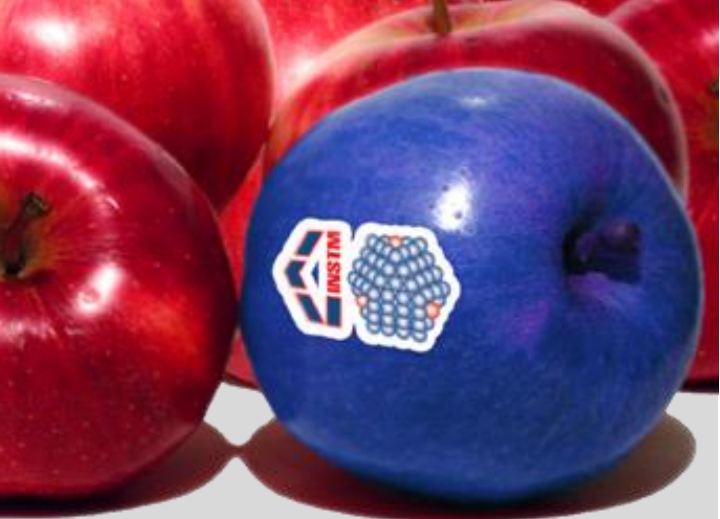
3. Nanostructured and functional polymer-based materials and nanocomposites (Nanofun-poly, concluded in 2008)

INSTM Coordinator: Prof. J. M. Kenny, University of Perugia



From NoE to
European
Institutes





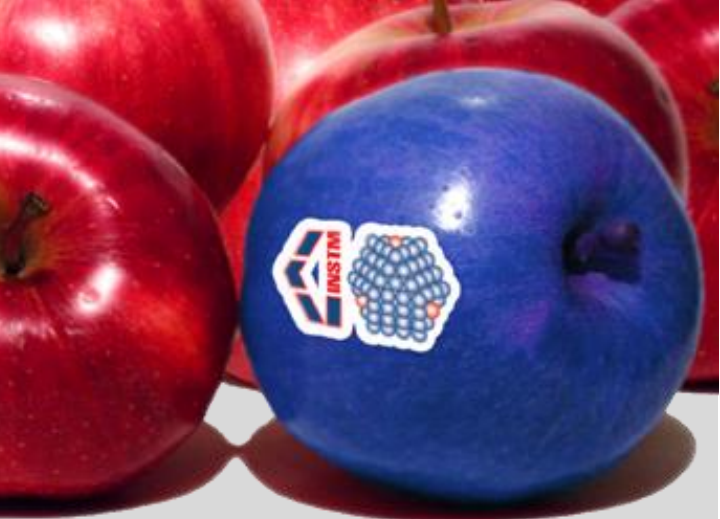
H2020 projects (INSTM Partner)

AGRIMAX	Agri and food waste valorisation co-ops based on flexible multi-feedstocks biorefinery processing technologies for new high added value applications	H2020-BBI-PPP-2015-2-1
A-LEAF	An Artificial Leaf: a photo-electro-catalytic cell from earth-abundant materials for sustainable solar production of CO ₂ -based chemicals and fuels	H2020-FETPROACT-2016-2017
ENHANCE	Piezoelectric Energy Harvesters for Self-Powered Automotive Sensors: from Advanced Lead - Free Materials to Smart Systems	H2020-MSCA-ITN-2016
PERFORM	PowerPlatform: Establishment of platform infrastructure for highly selective electrochemical conversions	H2020 Innovation Action
HUC	Development and validation of a powder HIP route for high temperature Astroloy to manufacture Ultrafan® IP Turbine Casings	H2020 Clean Sky2 Innovation action
BIOnTop	Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings	H2020-BBI-JTI-2018
SUN2CHEM	Novel photo-assisted systems for direct Solar-driven redUctioN of CO ₂ to energy rich CHEMicals	H2020-LC-SC3-2019-NZE-RES-CC
DECADE	DistributEd Chemicals And fuels production from CO ₂ in photoelectrocatalytic Devices	H2020-NMBP-ST-IND-2018-2020
ERN-APULIA3	European Researchers' Night Apulia 2021 - Discovering the fascinating world of research	H2020 Coordination and support action

International Cooperation projects (INSTM Partner)

SUMO	Scaling Up Quantum Computation with Molecular spins	ERANET QUANTERA – MIUR
NEXT-LIB	Novel Circular Economic Approaches for Efficient Extraction of Valuables from Spend Li-ion Batteries	ERA-MIN2 Reg, Calabria

INSTM in H2020 -
1



H2020 projects (INSTM Coordinator)

NEWTEAM	Next generation low pressure turbine airfoils by am	H2020 Clean Sky2 Innovation action
ECOFUNCO	Eco sustainable multifunctional biobased coatings with enhanced performance and end of life options	H2020-BBI-JTI-2018
COST ACTION CA 18130	European Network for Chemical Elemental Analysis by Total Reflection X-Ray Fluorescence	COST Open Call Proposal Reference OC-2018-1-22966
COST ACTION CA 20101	Plastics monitoring detection Remediation recovery	COST Open Call Proposal Reference OC-2021
ERN-APULIA2	European Researchers' Night Apulia 2020 - Discovering the fascinating world of research	H2020 Coordination and support action
POLYBIOSKIN	High performance functional bio-based polymers for skin-contact products in biomedical, cosmetic and sanitary industry	H2020-BBI-JTI-2016

International Cooperation projects (INSTM Coordinator)

4NanoEARDRM	NANOfabricated NANOcomposite NANObioactive and NANOfunctional replacements of tympanic membrane as advanced DRUG delivery and regenerative platforms	EuroNanoMed III JTC2017 - MIUR
NON-ACT	NOvel Natural Antimicrobial Coating for food production chain	Manunet III - Regione Toscana

Horizon Europe projects (INSTM Partner)

BEST	Batteries Europe Secretariat	Horizon Europe Coordination and support action
MIRIA	Development of antimicrobial, antiviral, and antifungal nanocoatings for everyday surfaces	Horizon Europe Research and Innovation Action

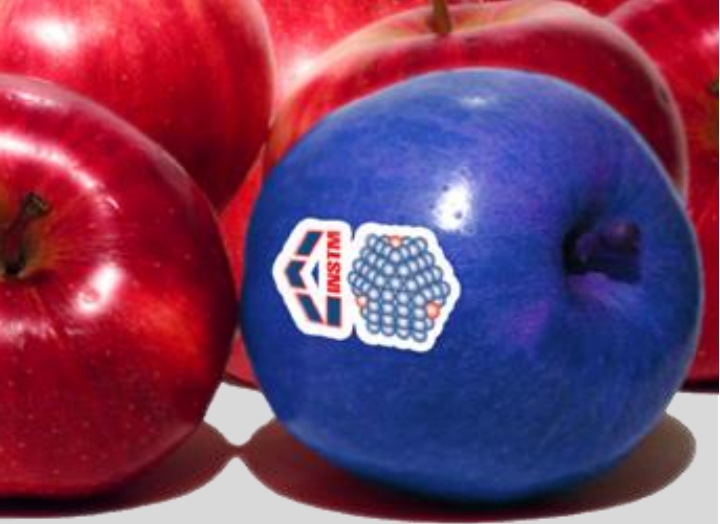
INSTM in H2020 - 2



INSTM is member
of Technology
C l u s t e r s

INSTM is member of:

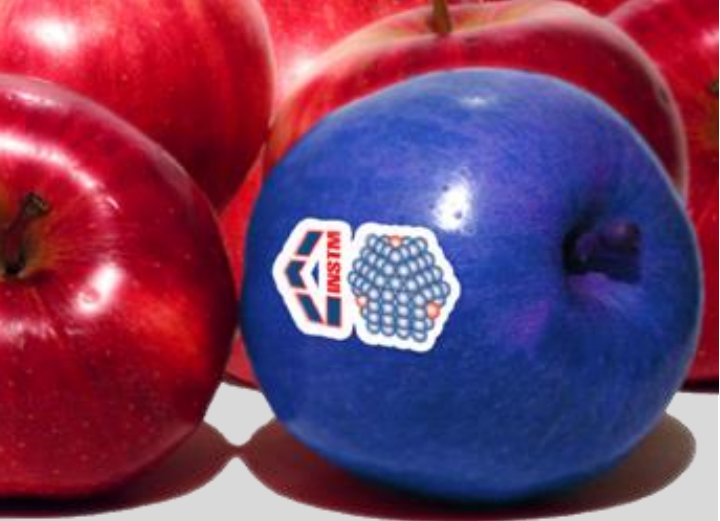
- ≡ Italian Cluster of Circular Bioeconomy SPRING
- ≡ Lombardy Energy Cleantech Cluster (LE2C)
- ≡ National Technological Cluster “Made in Italy” (MiniT)
- ≡ Associazione Fabbrica Intelligente Lombardia (AFIL)
- ≡ National Cluster “Fabbrica Intelligente” (CFI)
- ≡ Italian Association for Industrial Research (AIRI)



Collaboration agreements has been signed between INSTM and:

- Techint - Compagnia Tecnica Internazionale SpA
- CNR
- ACEA SpA
- Eni SpA
- MATERIAS Srl
- Rete AIRE5
- Baker&Hughes Srl
- Fondazione Istituto Italiano di Tecnologia (IIT)
- Sincrotrone Trieste SCpA
- Laboratori Nazionali di Legnaro dell'INFN
- Parco Scientifico Tecnologico per l'Ambiente Environment Park Torino SpA
- ECO GV Energy Srl
- Assobiomedica
- Rivista Open Access Polymers
- Kyoto Institute of Technology (KIT)
- CVR Srl
- LMPE Srl
- PA.SE Srl
- Iterchimica Srl

INSTM Italian and
international
partners



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p o i n t s