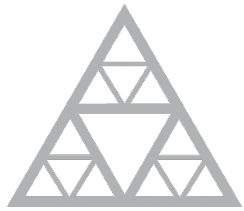


École des Ponts

ParisTech



L'ÉCOLE DES PONTS PARISTECH
Building the worlds of tomorrow

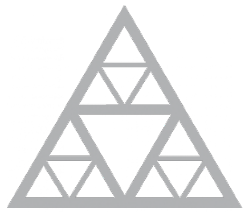


École des Ponts

ParisTech

A world-class Higher Education and Research Institution

- **Founded in 1747**
- **A unique combination of fundamental and applied sciences for innovation.**
- **A public engineering school recognized for the excellence of its graduate studies**
- **A largely internationalized institution**



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A long history

- **Oldest School of engineering in Europe**
- **1747:** École nationale des ponts et chaussées founded by King Louis XV
- **1851:** First laboratory
- **1988:** 1st Double Degree agreement with international universities
- **1997:** Relocation in Marne-la-Vallée, Green City Campus
- **2013:** New performance energy efficiency building, Coriolis. Paris-Est d.school
- **2017:** Investments for the Future Program “Inventing the City of Tomorrow”



Henri Becquerel

1852-1908

-Physicist-
Nobel prize 1903



Augustin Cauchy

1789-1857

-Mathematician-
One of the founders of
modern analysis



Eugène Freyssinet

1879-1962

-Engineer, entrepreneur-
The father of prestressed
concrete



Louis Ménard

1931-1978

-Engineer-
Developer of the
pressiometer



**Claude-Louis-Marie-Henri
Navier**

1785-1836

-Engineer, scientist-
Inventor of general theory of
elasticity



Jean Résal

1854-1919

-Engineer-
Builder of the pont
Mirabeau and pont
Alexandre III in Paris



Jean Tirole

1953-...

-Economist-
Nobel prize 2014



Louis Joseph Vicat

1786-1861

-Engineer-
Inventor of concrete



Alumni in industry and in government

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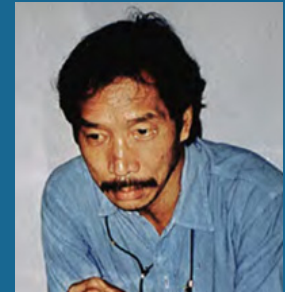
Elisabeth Borne
Ponts 86
Minister of the
Ecological Transition



François Bertière
Ponts 74
CEO Bouygues
Immobilier



Diane D'Arras
Ponts 77
President of IWA, former
VP SUEZ Environnement



Quasar Khanh
Ponts 59
Designer



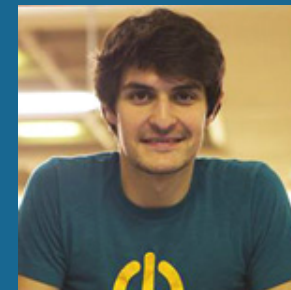
Antoine Frérot
Ponts 82
CEO Veolia



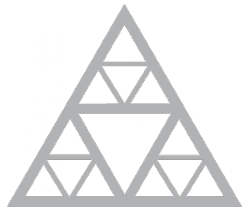
Mostafa Terrab
Pont 79
CEO OCP Group



Benoît de Ruffray
Ponts 1993
CEO Eiffage



Thibault Duchemin
Ponts 2013
Founder AVA



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Remarkable works, designed by our Alumni



Viaduc Millau - Michel Virlogeux



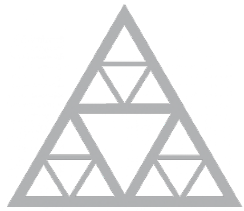
Gardens by the Bay (Singapore)
© Atelier one – passage project



Beijing Opera © Paul Andreu



Cristo Redentor
Albert Caquot



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Strong international cooperations



Imperial College
London



東京大学
THE UNIVERSITY OF TOKYO



清华大学
Tsinghua University



TUM
TECHNISCHE
UNIVERSITÄT
MÜNCHEN



POLYTECHNIQUE
MONTREAL



LE GÉNIE
EN PREMIÈRE CLASSE



POLITECNICO
DI TORINO



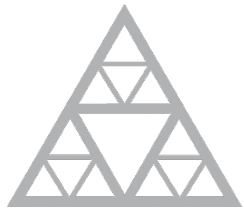
UNIVERSITAT POLITÈCNICA
DE CATALUNYA



UF *m* G

EiH zürich





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A school of excellence

- **International rankings:**

- Times Higher Education World University Ranking 2019

#1 International outlook*

#201-250

> moved up 50 positions in 1 year

*: First French school of engineering for the percentage of international students

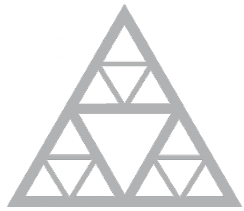


- QS World University Ranking 2019

#263

#51-100 by subject Engineering – Civil and structural 2019





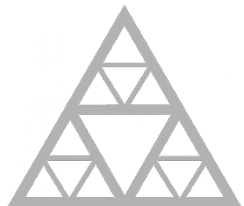
École des Ponts

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A school of excellence

- **85% of our students hired before graduation**
- **Location:**
 - 30 minutes from the center of Paris, France
 - On the Descartes Campus, the largest higher education and research hub in eastern Paris: 15.000 students
- **Funding:**
 - 50% by the Ministry for the Ecological and Inclusive Transition
 - 50% by industry





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School of engineering overview

Students :

- 850 students in the curriculum of engineering
- 100 in Masters programs
- 350 in Advanced Masters programs
- 550 PhD students & post-doc.
- 150 in MBA programs

i.e. a total of: **2 000** students, **25%** female

almost **50%** of foreign students

1 200 instructors (academics, researchers,
business partners)

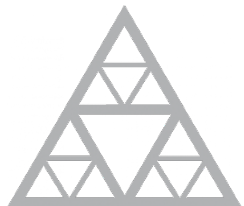
12 research laboratories

7 labs of excellence

420 permanent scientists

170 PhD defense / year

1000 rank A publications, including 35% with a foreign partner



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Our industrial partners



Transport,
environment,
urban services



Consulting



Energy



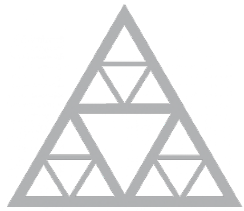
Construction



Industry



Finance



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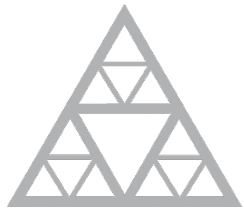
Our fields of excellence

- **Scientific disciplines:**

- Mechanics
- Applied Mathematics
- Economy

- **Applied domains:**

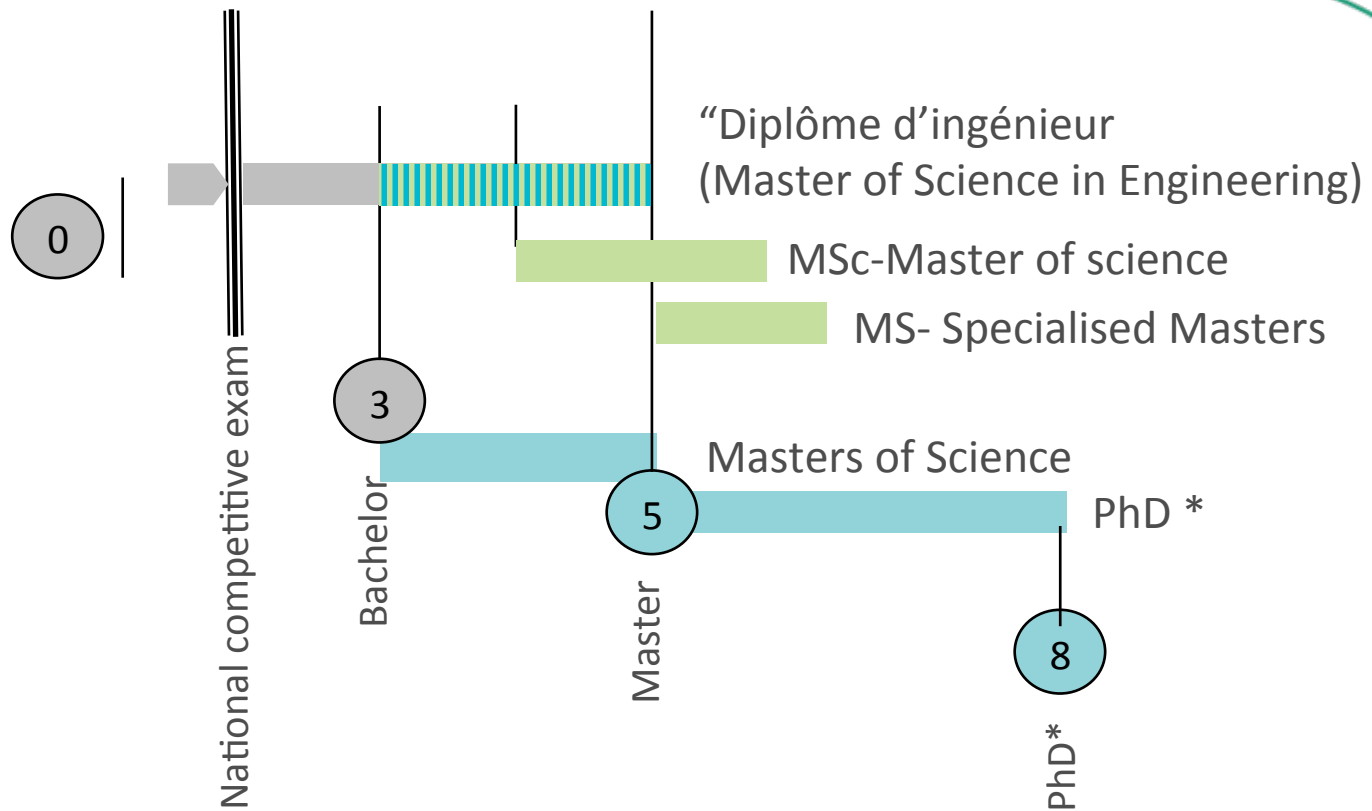
- Civil and environmental engineering
- Urban planning and Transport
- Mechanical engineering
- Finance, management, operations
- Data sciences



École des Ponts

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Academic programs

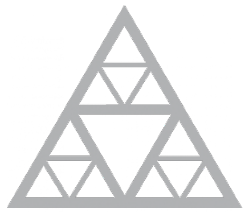


Industry-oriented

Research-oriented

8 years

* Awarded by Université Paris-Est



École des Ponts

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Engineering tracks

- **Civil Engineering and Construction:**

Complex projects, site work organization, innovation of new materials and construction technologies

- **Urban planning, Transportation and Environment:**

Planification of complex urban systems and operation of urban services (transportation, water,...)

- **Mechanical Engineering and Materials:**

Research and design of new products and materials in the fields of energy or transportation

- **Industrial Engineering:**

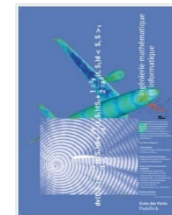
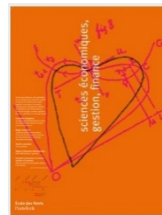
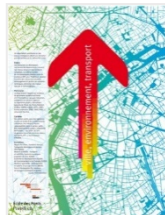
Innovation and supply chain

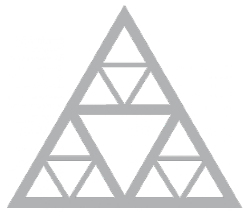
- **Economics Sciences and Finance:**

Financial engineers(financial engineering, project finance, public/private partnerships) and economist engineers (urban, environment, transportation, construction and economic regulation)

- **Mathematical Engineering and Informatics:**

Modélisation of complex systems ; analysis of financial, industrial or natural risks ; challenges within big data





École des Ponts

ParisTech

6 departments of studies

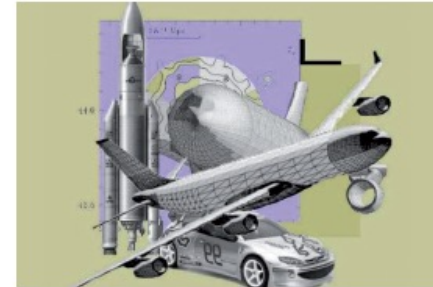
Civil engineering and construction



Urban planning, transport and environment



Mechanical engineering and material sciences



Industrial engineering

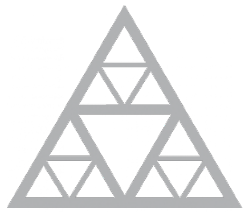


Economy, Finance, Management



Applied mathematics and computer science





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Research-oriented Masters programs

- **International Masters:**

- Transport and Sustainable Development (Renault Foundation)
- Water, soils and waste management
- Mobility and electric vehicles

- **Research Masters (M2) :**

- **Applied Mathematics**

- Applied Mathematics for Finance
- Mathematics, Vision, Machine Learning
- Numerical Analysis and Partial Differential Equations

- Nuclear Energy, Decommissioning and Waste Management (**English**)

- **Mechanics**

- Multi-scale Approaches for Materials and Structures

- **Civil Engineering**

- Mechanics of Soils, Rocks and Structures

- **Material Engineering and Sciences**

- Material Science for Sustainable Construction

- **Transport, Mobility, Infrastructures**

- Transport, Mobility

- **Environmental, Energy, Transport Economy**

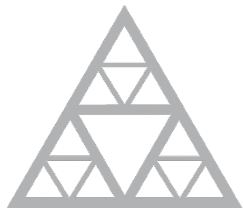
- Environmental Economy
- Energy Economics
- Prospective Modelisation

- **Environmental Science and Engineering**

- Water Systems and Water Management
- Ocean, Atmosphere, Climate and Space

- **Quantitative Economics**

- Analysis and Political Economy
- Public Policy and Development



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Industry-oriented masters programs



- **Civil Engineering**

- European civil engineering
- Civil engineering for large energy structures
- **Transports and Logistics**
 - Management and Engineering of Logistics Systems
 - Railway & urban transport systems
 - Supply chain design & management (English)
 - Smart Mobility (English)
- **Public Action**
 - Public policy for sustainable development
 - Master Internacional Empresas y Politicas Publicas (Spanish)

- **Finance**

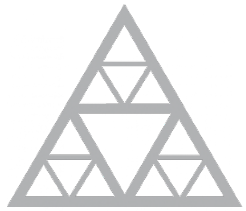
- Infrastructure Project Finance (English)
- Economic Decision and Cost Benefit Analysis (English)

- **Building**

- Real estate, buildings, energy
- Design by Data (English)
- BIM, integrated design & life-cycle of buildings and infrastructures

- **City and Urban Development**

- Urban planning & development
- Urban engineering & information technologies (English)
- Smart Cities engineering (English)
- Transport and Urban Development for Africa



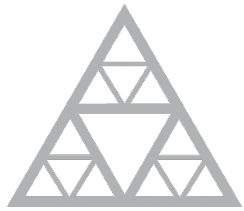
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PhD programs

- **Doctoral schools :**
 - Sciences, Engineering and Environment
 - Planning, transport, territories
 - Mathematics, Information, Communication Sciences and Techniques
 - Organization, markets, institutions





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Challenge-based Research

- **Contributing to 4 socio-economic challenges of sustainable development**



**Resources,
Environment,
and Risks
Management**



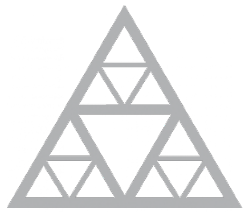
**Economy,
Behavior, and
Society**



**Urban Systems,
and Mobility**



**Industry
of the Future**



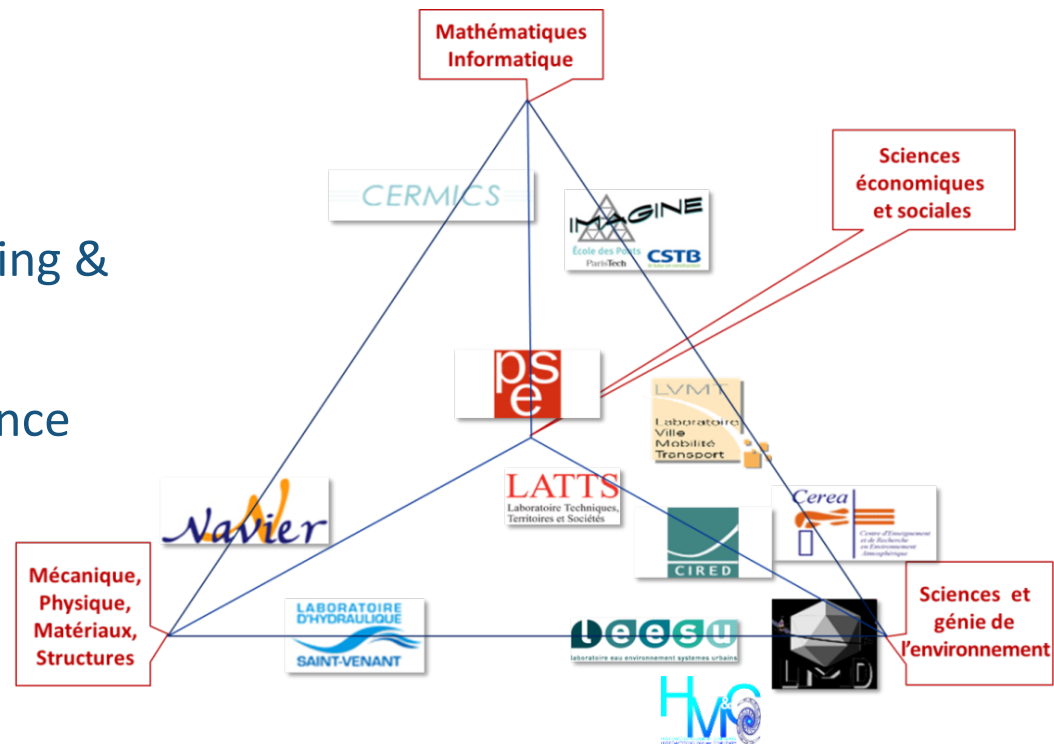
École des Ponts

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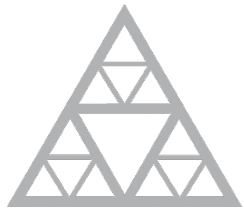
12 research laboratories

- **4 Disciplinary pillars**

- Mathematics & Computer science
- Mechanic engineering & Material science
- Environmental science
- Economic & Social sciences



- **Developing a comprehensive, interdisciplinary approach**



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The Co-Innovation Lab

Collaborative platforms improving transfer to industry



Fresnel : multi-scale observation and modelling platform for resilient cities

X-band dual polarisation weather radar, lidars, disdrometer...



Build'In : building systems and artificial intelligence, materials and structures optimisation, industrial processes

Robotic hall, large-scale additive manufacturing unit, concrete and composite materials modelling ...

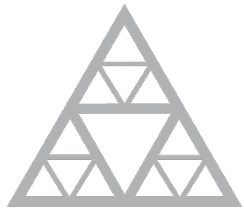


Mμ : urban mobility modelling, new behaviors, infrastructures and urban planning, impact of public policies

Softwares, traffic simulators...

Key figures

- 12 labs
- 225 researchers
- 500 PhD students
- TRL 5-9
- Business Club with large companies, SMEs and startups



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Innovation and entrepreneurial mindset

- Young and dynamic alumni entrepreneurs



Ultra-light
aircraft seats



Daylight system
with fiber optic



From 2D to 3D

- D.school Paris



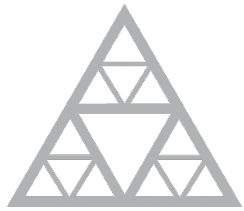
- 3 start-up incubators:

- GreenTech Verte
- Descartes +
- Station F



STATION F



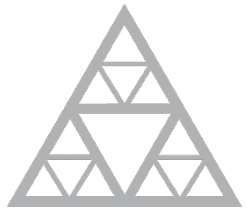


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The green cluster – East Paris Cité Descartes





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School of Engineering

Building the worlds of tomorrow

Thank you

www.enpc.fr/en