Ter@tec

Pôle européen de compétence en simulation numérique haute performance

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European Eco-System for High Performance Computing

http://www.teratec.eu

- High Performance Computing is strategic for :

  + Competitiveness and capacitiy of innovation of Industry and Services
  + Scientific and Technological challenges

For example :

→ Design and Life Cycle Management of products and complex systems
→ Biology and design of new molecules
→ New innovative materials
→ Indexation and mining of large multimedia databases

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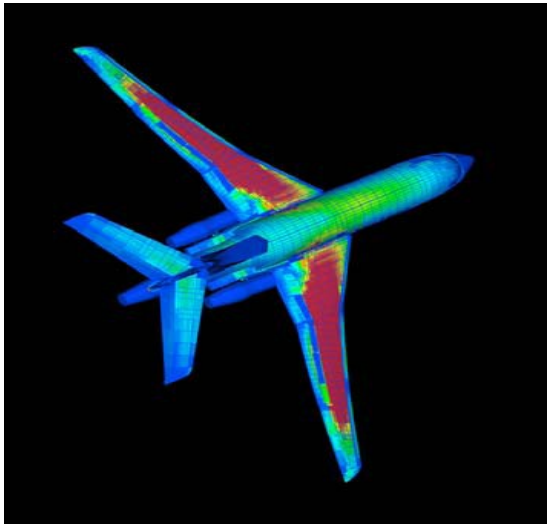
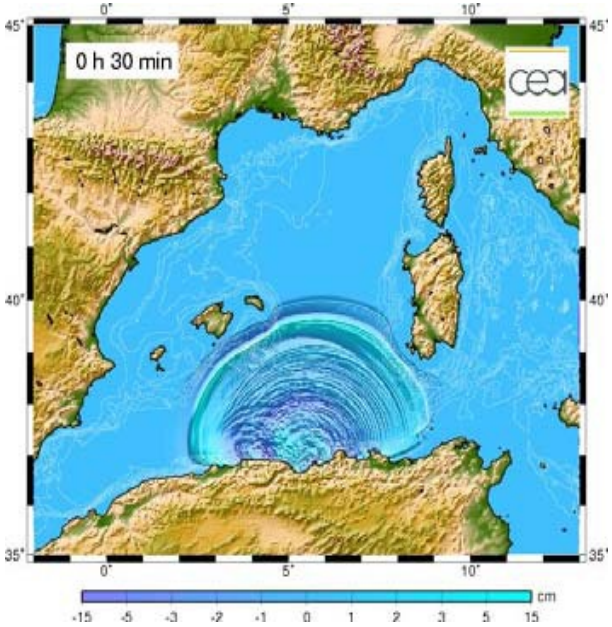
- High performance computing covers all major challenges of 21st century



+ Environment and sustainable development
+ Natural Resources
+ Energy
+ Risk analysis
+ Medicine – Biology
+ Climate
+ Transport



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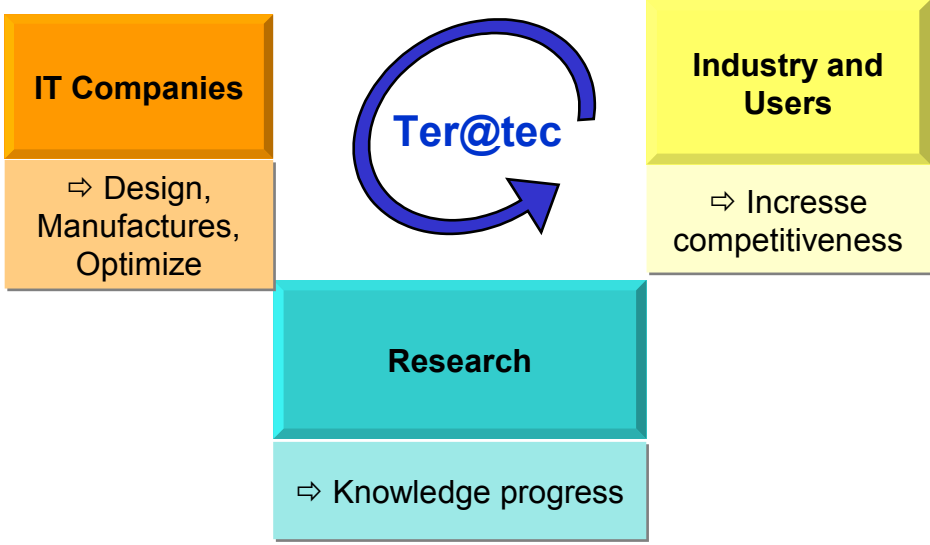
TERATEC OBJECTIVES



- Founded in 2005 in order to

  + promote high performance numerical simulation
  + federate the actors of HPC
    - academic institutions / industry companies
    - technology and service providers /end users

→ Access to the most powerful HPC Systems and to the most efficient softwares

→ Development of technological the knowledge/Hardware and Software

→ Training of students and engineers

→ Economical development

/ employement, start-ups,…/

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Ter@tec to day

- Non profit organization

  currently 53 Members

- >50 Teraflop/s available

  → 300 Teraflop/s 2009

- Large collaborative R§D projects

  POPS – CARRIOCAS - EHPOC

- Partnership with universities and engineers schools for HPC master degrees

- Collaboration with national and European initiatives

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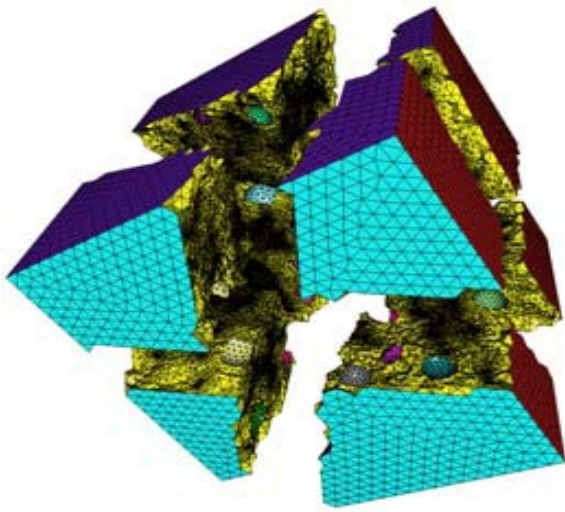
Examples :

Collaborative R§D Projects :



+ POPS – Petaoperations per second (BULL)
  - New Generation of high power Petaflop/s Systems
  - Large scale scientific challenges

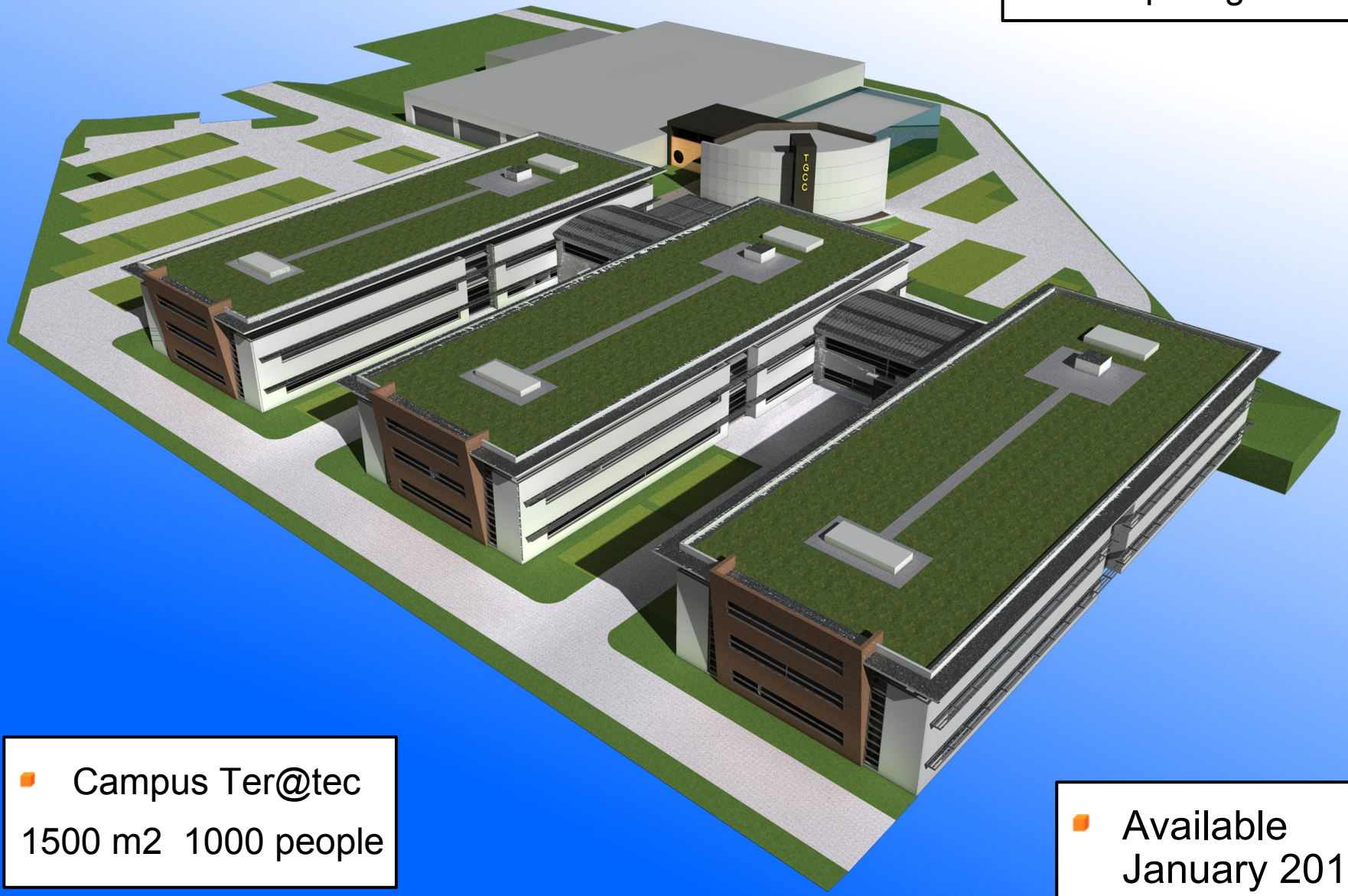
+ CARRIOCAS (Alcatel – Lucent)
  - Ultra high bitrate optical fiber network
    /40 Gb/s /
  - Treatment of massive volumes of data high resolution visualization

+ EHPOC : (CS-SI)

Global optimization of multiphysics and multiscale complex systems
/ optimization – uncertainties … /

Future Infrastructures of TERATEC

- TGCC (Very Large Computing Center)



- Campus Ter@tec

1500 m2 1000 people

- Available January 2010

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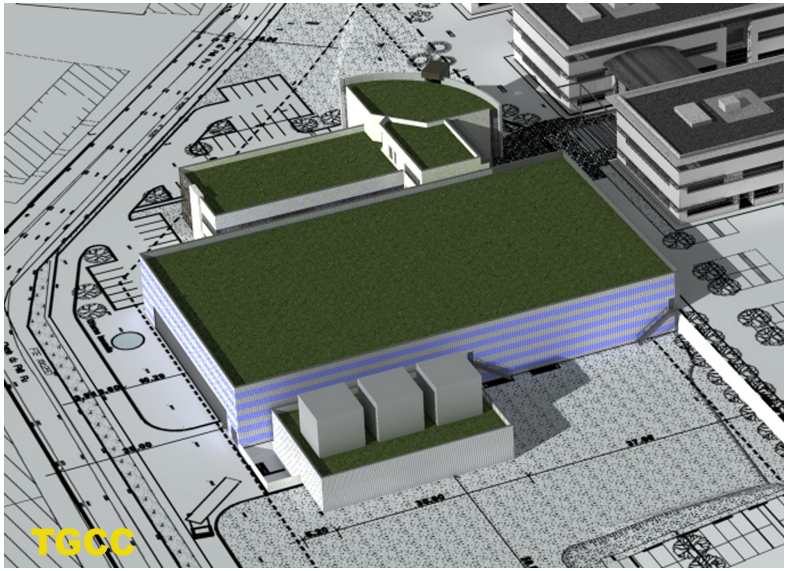
TGCC (Very Large Computer Center)

- Key Figures
- Computer rooms : 2600 m²
- Annexes : 3000 m²
- Conference room : 200 places
- Offices for scientific exchange : 2100 m²
- Electric power supply 60 MW



Computing power in 2010 :

- 0,5 Petaflop/s for national future machines
- 1 Petaflop/s for european machine

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Campus Ter@tec

15000 m2, 1000 people

- In a same location leader companies and research institutions :
  - System Architecture
  - Software
  - Services
- Two European Laboratories/Research-Industry
  - + Architecture and System
  - + Complex System Design
- European Training Institute for HPC
- Incubator

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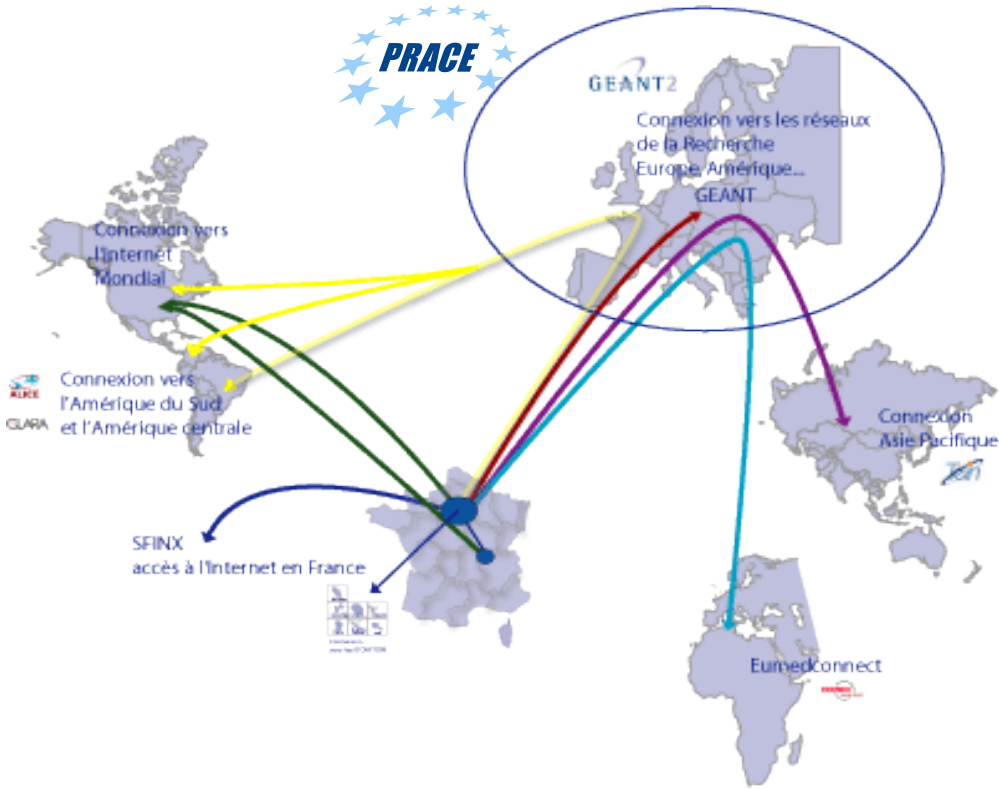
TERATEC a cluster associated to the main international initiatives

- Europe
  - PRACE Project
  - European Institute of Technology

Partnership with other European clusters

- Partnership with USA - Japan



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High Performance Computing

- Strategic for
  - competitiveness and capacity of innovation
  - large scientific and technological challenges
- a necessity and a chance for Europe

TERATEC wants to create the first European cluster for intensive simulation and high performance computing


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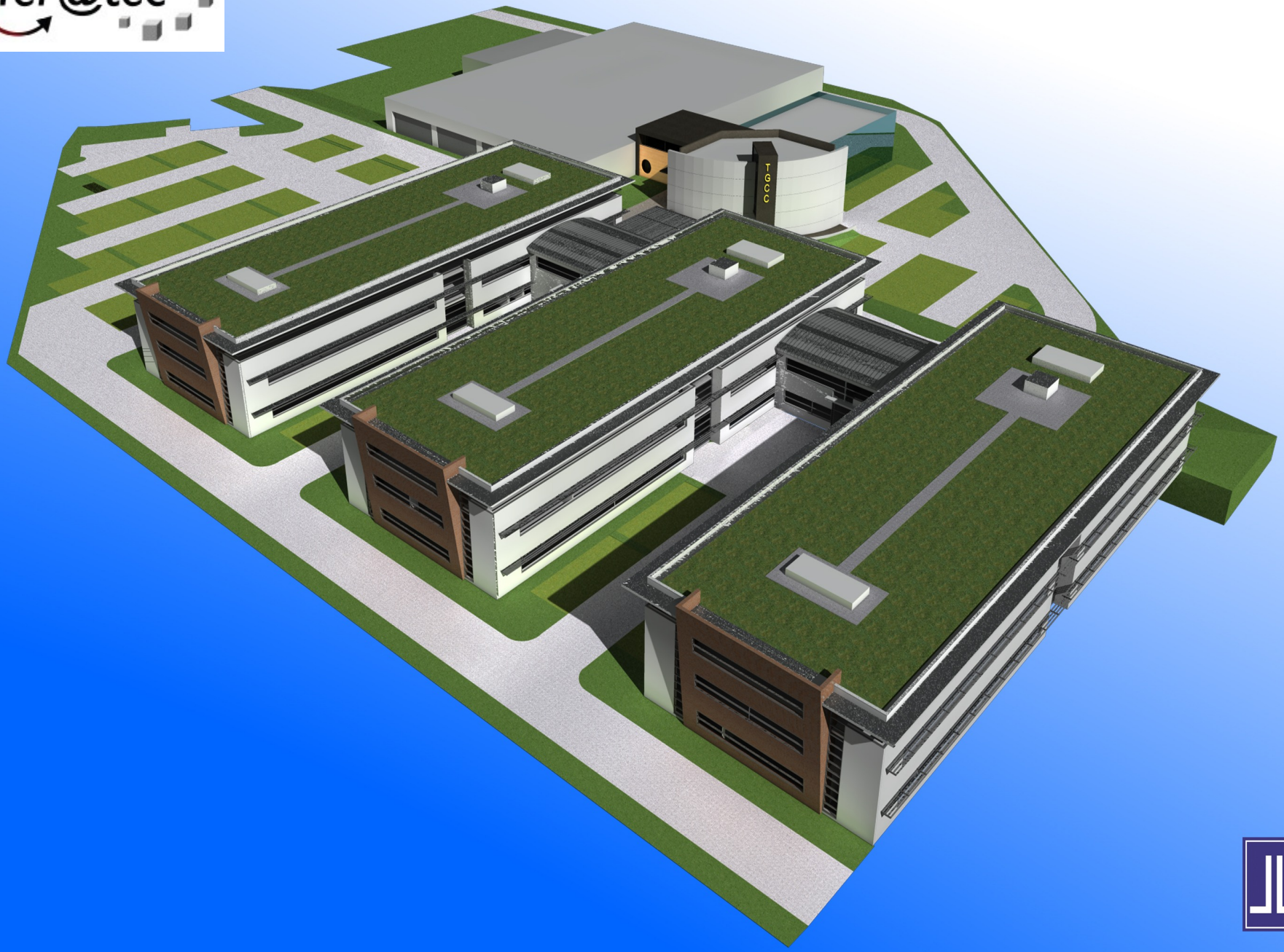
www.imaconcept.tv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Ter@tec technopole

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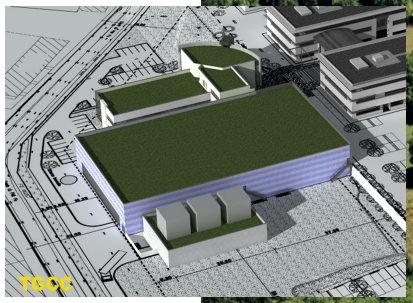

Arpajon

Ollainville

CEA

Campus Ter@tec

TGCC

Bruyères-le-Châtel