

**Does Europe capitalise on its world-leading European Experimental Scientific Organisations ?**

*Inspiring and world leading*

JET Culham  
 ESA Paris, Madrid, & Noordwijk  
 EIROforum  
 EMBL Heidelberg  
 ILL & ESRF Grenoble  
 ESO Garching & Chile  
 CERN Geneva

**Why do Scientists do Science ?**

This ? Or this ?

Curiosity makes life a constant adventure

This ?

Sign on a door in Berkeley "Physicists like to drive Porsches too"

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**The Seven EIROforum Laboratories - Quarks to Quasars**

The 7 European Intergovernmental Research Organisations

Outreach

Listening & Lobbying

FP6 Launch Brussels

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**CERN: where the World Wide Web was born...**

Large Hadron Collider with its four major detectors  
First 7 + 7 TeV proton collisions in 2007

Atlas

Alice

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**CERN, created in 1954, has built up a chain of accelerators**

CERN's Chain of Accelerators

The History of the Universe

1954-2004 CERN 50

Particle Accelerators are Time-Machines that bring us back to the Early Universe

LHC

BIG BANG

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**EFDA EUROPEAN FUSION DEVELOPMENT AGREEMENT**

**JET**

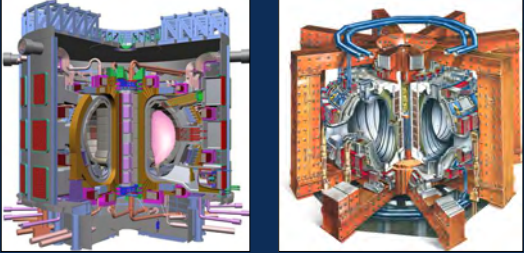
Joint European Torus

JET is the largest nuclear fusion research facility in the world  
and the best EU asset in preparation of ITER,  
a world-wide project aiming at 500 MW fusion power

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EFDA EUROPEAN FUSION DEVELOPMENT AGREEMENT JET

**JET - a bridge to ITER**



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ESRF, EMBL & ILL, Grenoble, France




The core of the ILL reactor - 58 MW



Čerenkov Radiation

Vivaldi at the Institut Laue Langevin

Vitamin B<sub>12</sub>,  
10,000 reflections 8 hours, crystal of 10 mm<sup>3</sup>  
Wagner, Luger et al (TU Berlin), Mason & McIntyre (ILL)



European Molecular Biology Laboratory Grenoble Outstation

The European Synchrotron Radiation Facility  
A light for science



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The samples used for SR are getting bigger

Le « Mary Rose »  
souffre de son soufre

Sahelanthropus tchadei  
the earliest known hominid

21<sup>st</sup> November



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### DNA conformations using both sources

A-DNA	B-DNA	C-DNA	D-DNA	Z-DNA
RH	RH	RH	RH	LH
11 bp/turn	10 bp/turn	9.33 bp/turn	8 bp/turn	12 bp/turn
pitch=28.2Å	pitch=34Å	pitch=31Å	pitch=24.2Å	pitch=43Å

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### The five Branches of EMBL

- DESY Hamburg**: Structural Biology
- Hinxton**: European Bioinformatics Institute
- EMBL Heidelberg**: Basic research in molecular biology
- Grenoble ILL ESRF**: Structural biology
- Monterotondo EMMA CNR**: Mouse biology

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### Ensembl: Annotating the Human Genome

Human Genome Browser

#### A distributed Centre of Excellence

Retrieve a sequence: BLAST your sequence, Export Sequence, Download, Export Data, SBANA

Export a list of genes or SNPs: For fast identity search try SBANA

Documentation & Help: About Ensembl, For content sensitive help on any web page click, Questions or suggestions? Try

Other species: Mouse, Fly, Zebrafish, Mosquito

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### The European Southern Observatory Very Large Telescope (VLT) in Chile

- The world's most advanced telescope in Paranal, Chile
- 4 8.2-m telescopes + 1.8-m
- Adaptive optics to compensates disturbances (resolution as

The Brown Dwarf J11037 and its Planetary Companion (VLTAACO)

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### The 100-m Overwhelmingly Large Telescope OWL

- Segmented primary and secondary mirrors
- Primary Research areas: Cosmology; search for extrasolar planets

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### What can an OWL see?

OWL


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**esa** Ariane 5 in French Guyana  
Two weeks ago

**The European Space Agency**

ESA programs

- Human space flight
- Microgravity
- Earth
- Technology



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**ESA Mars and Venus Express**





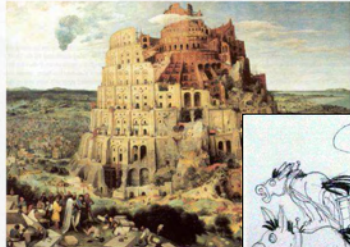
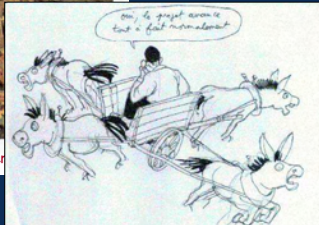
Baikainur  
3 weeks ago

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So, all is well, isn't it ?

...rated ?

Future Needs ?

The Tower


"God's punishment was that the tower was never finished"

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**EIROforum and Commissioner Potocnik**



EIROforum partners





Towards a Europe of Knowledge and Innovation

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