

Resonant Ionization Laser Ion Source at GANIL

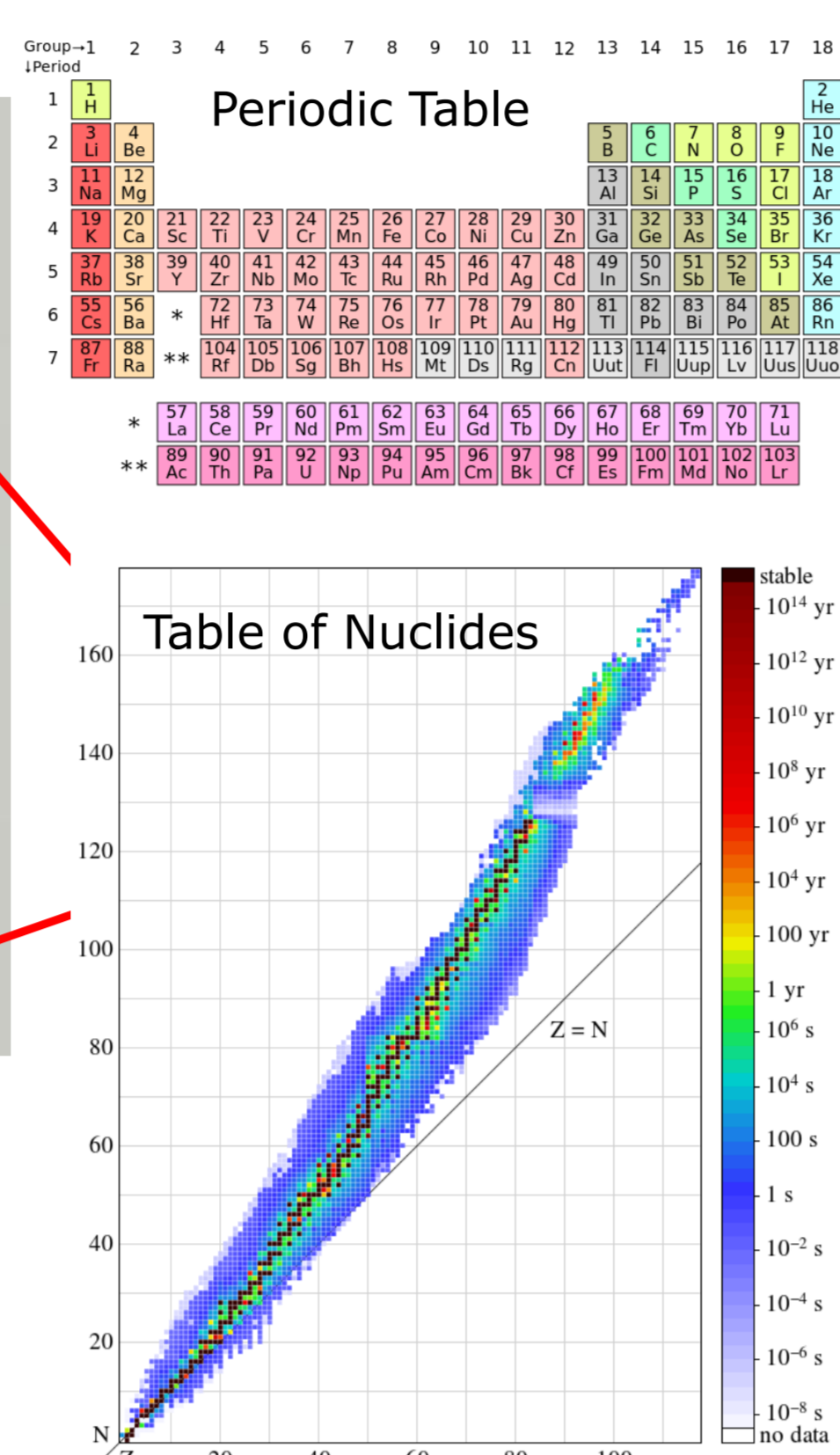
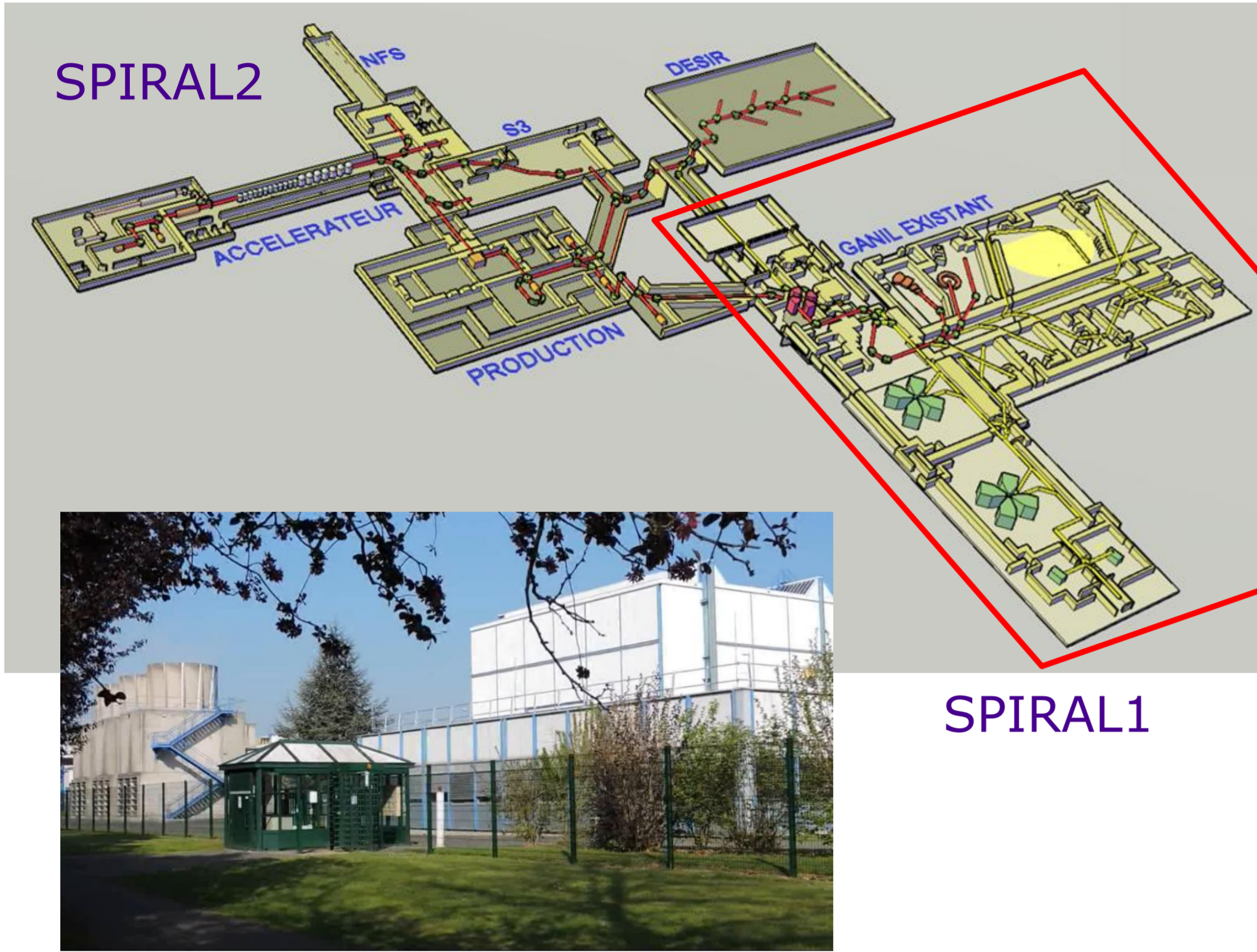
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GANIL particle accelerator facility



Fundamental Science

Astrophysics

Medicine

Materials Science

Technology

Biology

Did you KNOW?

The SPIRAL2 LINAC (LINEar ACcelerator) is a large cryogenic system that operates at a frosty **minus 268 °C**.

It is one of the coldest places on Earth, and it is close to the temperature outer space, which tends to rest at about minus 270 °C.



Why? In order to conduct electricity without resistance, the LINAC's electro magnets are cooled down to cryogenic temperatures.

Stepwise Resonant Excitation process

Versatile: suitable for more than 80% of the elements

Efficient: Average efficiency ~10%

Chemically selective: reduces isobaric contamination

Experiment

Laser system

Mass spectrometer

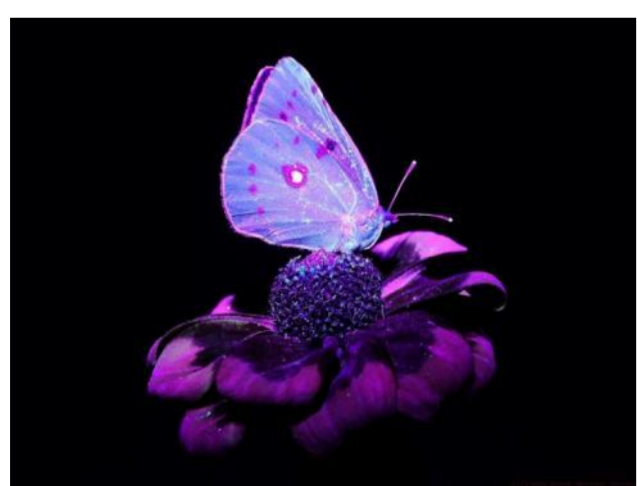
LISBET ion source

Did you KNOW?

The wavelengths of **infrared** (IR) light and **ultraviolet** (UV) light are too long and too short to be visible to the human eye.

However some animals can see parts of the spectrum that humans cannot. For example, a large number of **insects and birds** can see **ultraviolet** light.

On the other hand, **snakes and bats** can see **infrared** light. This adaptations improve the possibilities to find food or to avoid dangers.



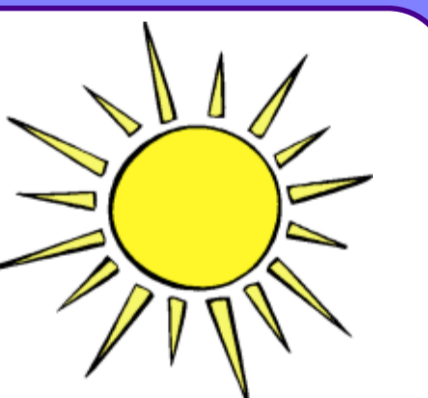
Geometry study

4 geometries to compare:

Geometry used world wide			
Diameter: 3 mm	Length: 35 mm	Diameter: 7 mm	Length: 35 mm
Diameter: 7 mm	Length: 60 mm	Diameter: 3 mm	Length: 60 mm

Did you KNOW?

Light from the **Sun** takes **8 minutes 20 seconds** to reach the **Earth** but light just takes **1.255 seconds** to get from the **Earth** to the **Moon**. **Sunlight** can reach a depth of around 80 metres (262 feet) in the ocean.



Reduction of Contaminants

Two ways to reduce the contamination

A - Electric field control:

B - New materials:

Special property: Low work function

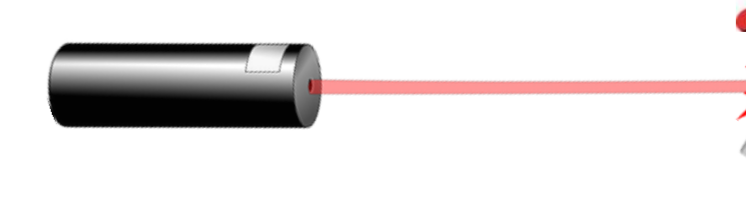
Ions Time of Flight study

Method to scan the ion beam

Low energy profiler

Did you KNOW?

The early lasers were characterized as having a power of one **"Gillette"** as it could burn through one Gillette razor blade.



The first time lasers were used commercially was in 1974 when they were used in **supermarket barcode scanners** in Ohio (USA). A barcode scanner reads the white bars, not the black bars!

