



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

# Laboratory of applied physics

Title



Introducing low-field NMR devices for profiling biological tissues

Objective



Discriminate morphological differences among the three layers of the cartilage by determining 4 NMR parameters

*SUMMER SCHOOL on  
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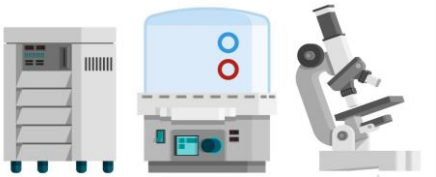
*Department of Physics & Astronomy – University of Bologna*

*July 17-21, 2023*



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## Instruments

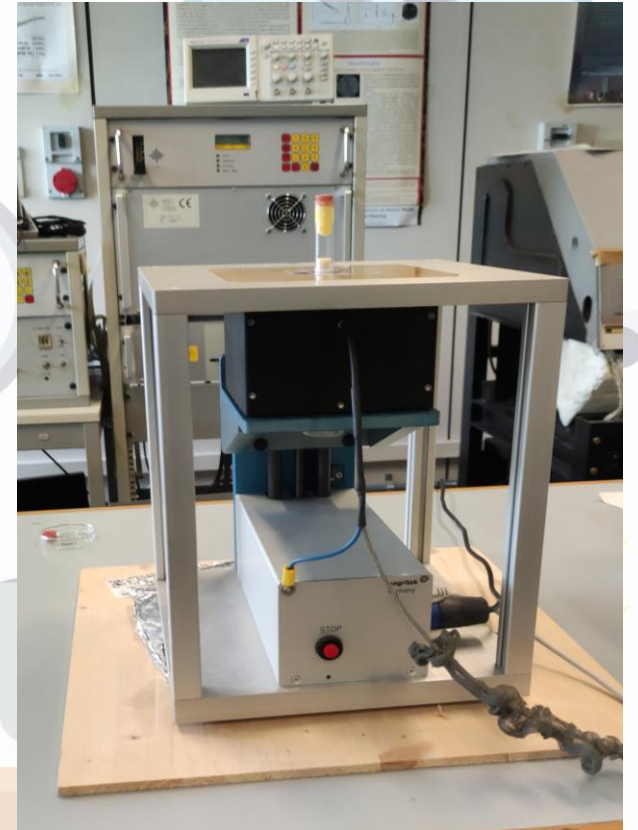


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NMR-MOUSE PM10

More details .....

Tutor:  
Carlo Golini



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Title



Objective



# Laboratory of Astrophysics

Characterization of optical (and IR) solid state detectors

Measuring conversion parameter to retrieve the number of detected photons

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## Instruments



## More details

Tutor:  
Alessandro  
Gesuato

# Laboratory of Astrophysics

CMOS camera,  
integrating sphere

By means of simple acquisition of flat-field images it is possible to retrieve the detector conversion parameter





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Title



Objective



# Laboratory of atmospheric physics

## Environmental Thermography

Measuring heat transfer through an evaporating  
surface

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# Laboratory of atmospheric physics

## Instruments



## Infrared camera

The fast-sampling rate of the camera captures the thermal transient of a wet surface while evaporating under different external forces



## More details

Tutor:  
Luigi Brogno

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# Laboratory of Condensed Matter Physics

Title



Introducing MEDIPIX2: a high resolution pixelated spectrometer for ionising radiation

Objective



This hands-on experience aims to make the student familiar with advanced silicon-based pixelated detection technologies developed for tracking, energy deposition and identification of ionising radiation particles.

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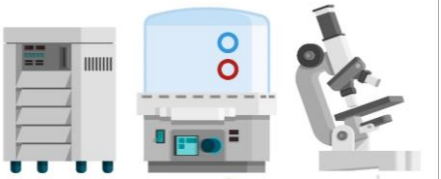
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## Instruments



## More details

Tutor:  
Jessie Posar

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# Laboratory of Condensed Matter Physics

## MEDIPIX



- Introduction to MEDIPIX
- Measuring the spectrum of a radiation source
- Measuring the divergence of a collimated radiation beam

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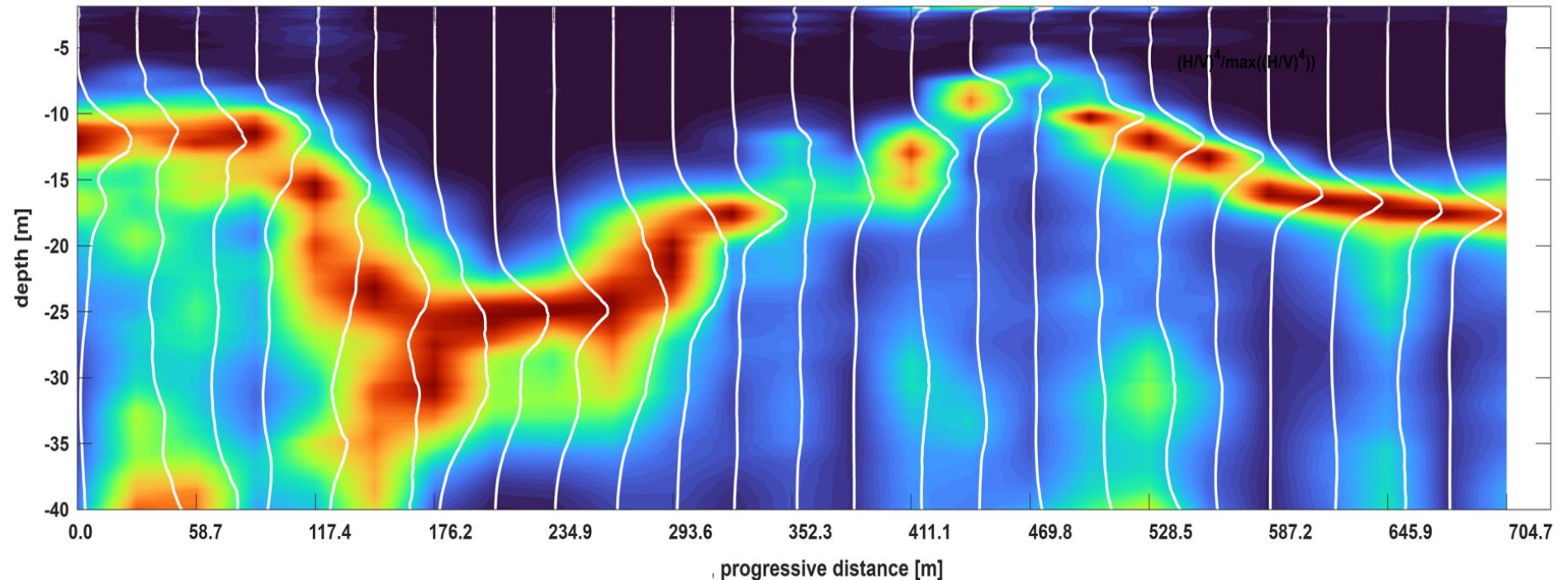
# Lab. of exploration geophysics

Exploiting ambient noise to map the Earth interior

Title



Objective



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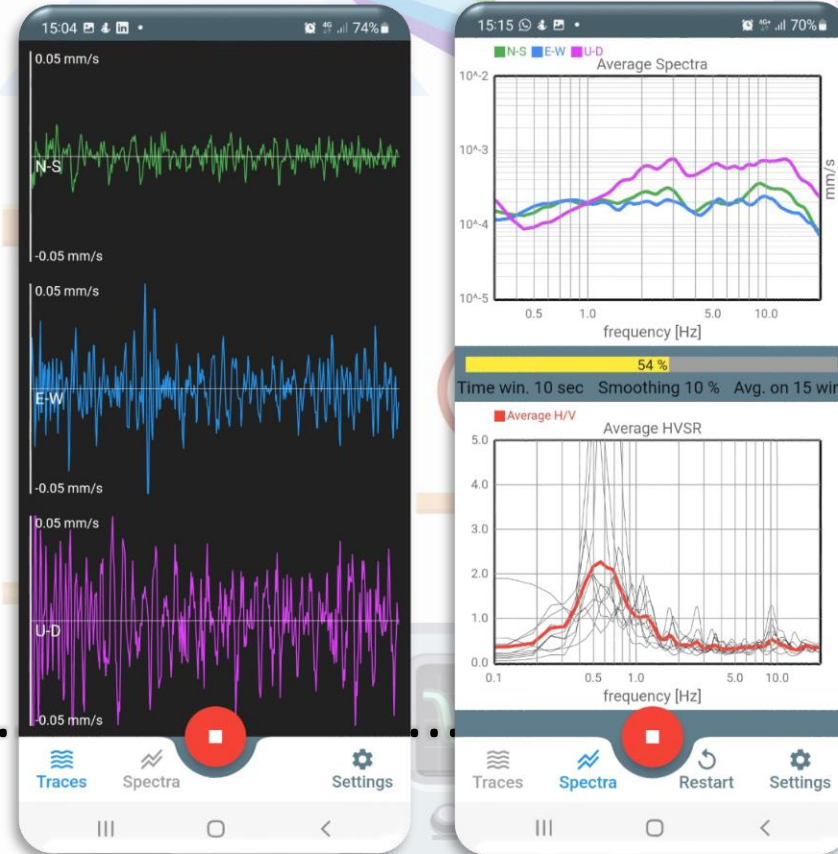
## Instruments



More details .....

Tutor:  
Valentina  
Cicero

# Lab. of exploration geophysics



By using seismometers, we measure resonances of soils and structures to understand their geometrical and mechanical properties, as well as their dynamic (earthquake, wind) behavior.

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Title



Objective



# Laboratory of nuclear physics

## Scintillators for particle detection

Studying the main features of different scintillators and readout modalities commonly used for particle detection in nuclear and particle physics

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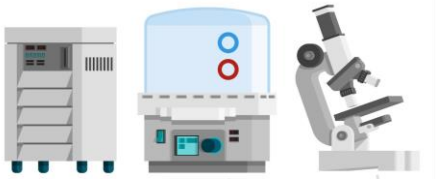
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## Instruments

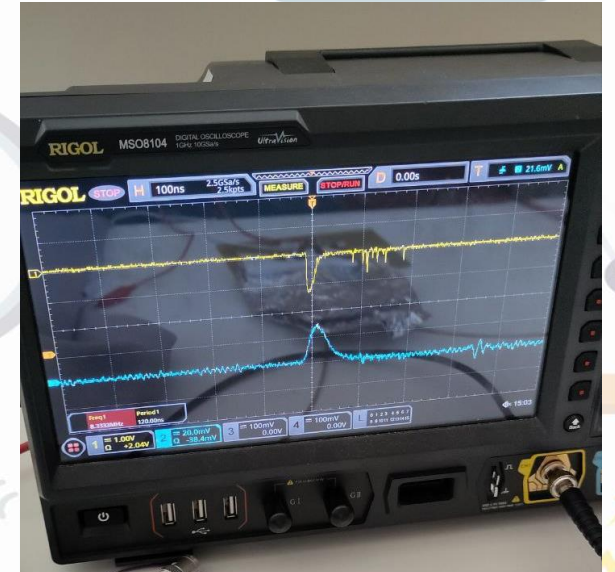


Tutor:  
Riccardo  
Ridolfi

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# Laboratory of nuclear physics

Oscilloscope  
Scintillators  
Nuclear electronics  
Power supply  
Cosmic rays from space



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