

université  
PARIS-SACLAY

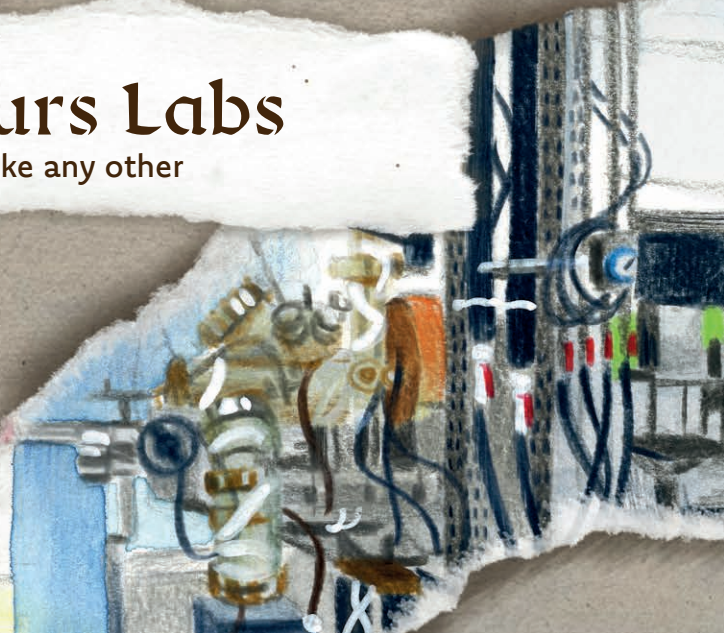
FACULTÉ  
DES SCIENCES  
D'ORSAY



$\Rightarrow \gamma(IP, \Theta | P_2)$  |  $slm \ll 1$   $\alpha$   
 $QD(m) \quad q \quad ! \quad sh_m \rightarrow sh(m)$   
 $L \leftarrow P \rightarrow G \quad B \quad B \quad \rightarrow IP_i \Rightarrow \left\{ \begin{array}{l} \text{---} \\ \text{---} \end{array} \right.$   
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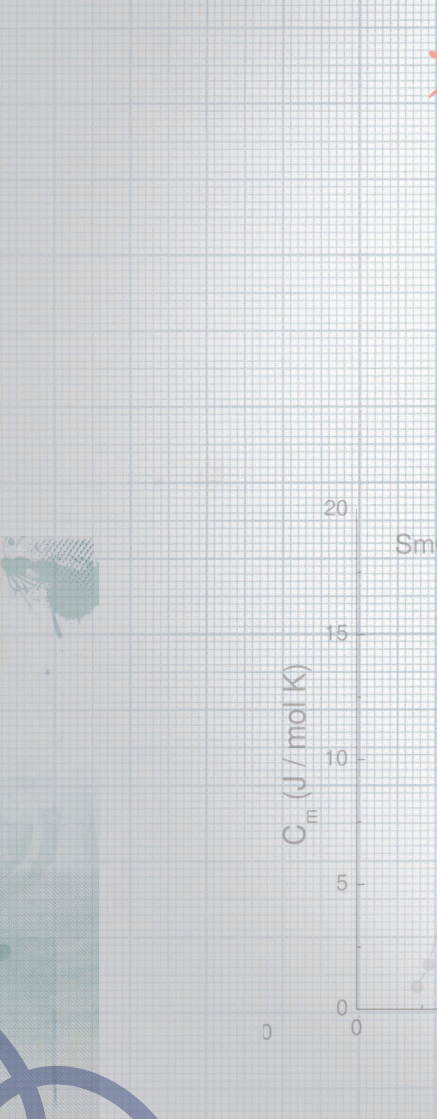
# Watercolours Labs

A travel journal unlike any other









*Léna is an illustrator.*

*During her vacations, she loves capturing  
landscapes in her travel sketchbook.*

*One day, an absurd idea strikes her:  
instead of a bucolic shoreline or a majestic peak,  
what if she painted... our laboratories?*


*Challenge accepted! Off she goes to the Faculté des  
Sciences d'Orsay.*

*Each day, she discovers a new lab, unusual topics,  
unexpected settings, and scientists slightly surprised  
to find her quietly settled among their experiments,  
watercolor and brushes in hand. With only three hours  
each time, she sketches the intimate backstage  
of research in progress.*

*Welcome to a unusual sketchbook...*

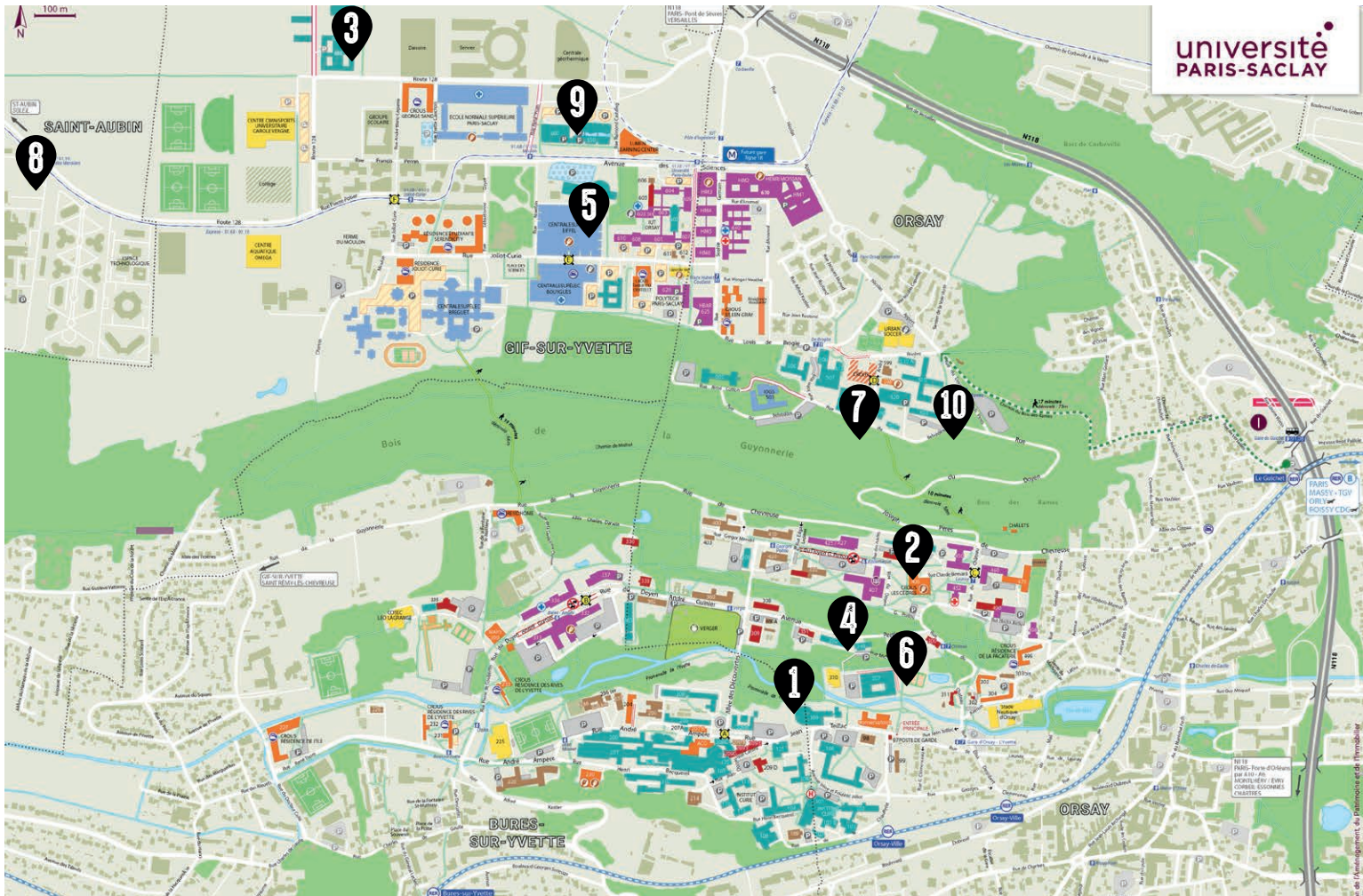


*Léna*



# Itinerary and schedule

- 1 *Plateforme ALTO - IJClab*
- 2 *Groupe d'Histoire et Diffusion des Sciences d'Orsay - GHDSO*
- 3 *Serres de l'IDEEV*
- 4 *Plateforme ELYSE - LCP*
- 5 *Microscope électronique de l'ICMMO*
- 6 *Laboratoire des Mathématiques*
- 7 *La chaîne Femto - ISMO*
- 8 *NeuroPSI*
- 9 *Plateforme Wilder - LISN*
- 10 *GéoPS*



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Stop 1

# Monday-10am

Weather:



Travel time: 1h

Arrival time: 10h

Departure time: 13h30

## NUCLEAR PHYSICS

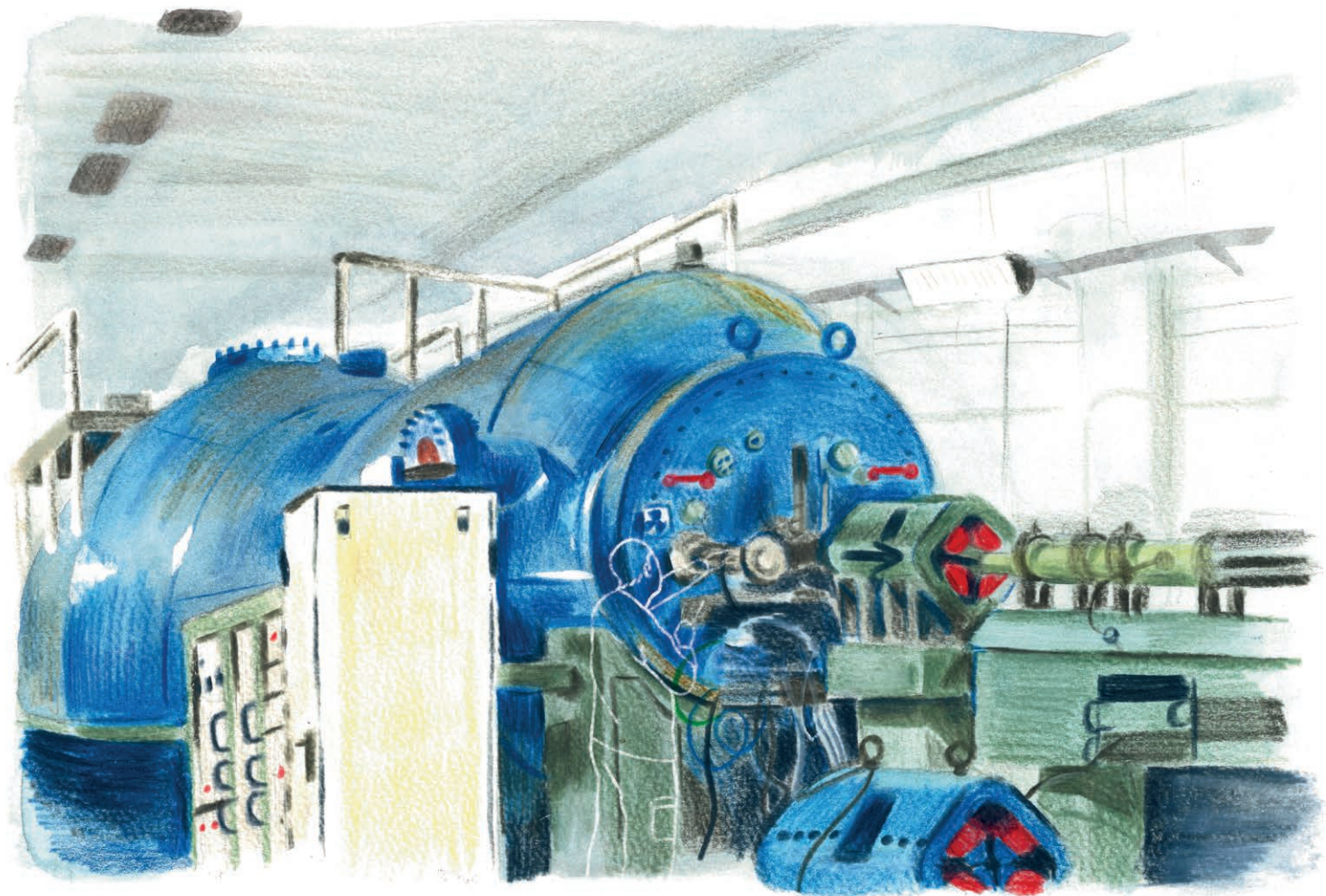
Today, I am at **ALTO**, the Laboratoire de Physique des 2 Infinis, at the heart of nuclear physics.

Here, I am discovering an enormous blue structure called **TANDEM**. This giant is a true **particle accelerator**. It shallows negative ions to project them at incredible speeds, driven by powerful electric fields of nearly **15 million volts**.

Here, particle beams are produced, sometimes containing extremely rare particles to explore the infinitely small, astrophysics, biology, and even nanotechnology.

How can I capture the power of such a machine and these breathtaking acceleration of **invisible particles**?

**I have three hours.**



Stop 2

Tuesday-2pm

Weather:



Travel time: 1h15

Arrival time: 14h

Departure time: 17h

## HISTORY AND SCIENCE EDUCATION

*This morning I arrive at the **Groupe d'Histoire et de Diffusion des Sciences d'Orsay**.*

*There is no machine, no scientific instrument. And yet, this is where research is **written, shared and debated**. Books, notes and exciting discussions are everywhere. The history of mathematics, biology, physics and even education are studied here. It is a place where past and present **practices** are observed, and where the circulation of **knowledge** is explored.*

*Step by step, I begin to understand that science is also built on ideas and words. The invisible laboratory comes to life through the people gathered there.*

*But how can I draw it?*

***It's up to me!***



Stop 3

# Wednesday-2pm

Weather:



Travel time: 1h20

Arrival time: 14h30

Departure time: 17h35

**PLANT  
BIOLOGY,  
ÉCOSYSTEMS**

Today, I am discovering the **Institut Diversité, Écologie et Évolution du Vivant**.

I step into **vast greenhouses** where insects and plants are the main characters. Giant maize plants, melon shoots, beans, wild apple trees and other fascinating specimens surround me...

Here we study ecology, genetics and the mysterious mechanisms of the **living genome**.

How do plants adapt to the environmental change? How do they interact with insects? What about transgenic plants? These are just some questions that scientists are trying to answer in this **strange laboratory**.

**Now it is my turn to use my tools to reveal the superpowers of life.**



Stop 4

# Thursday-9am

Weather:



Travel time: 1h20

Arrival time: 14h30

Departure time: 17h35

**CHEMISTRY,  
PHYSICS,  
LASER**

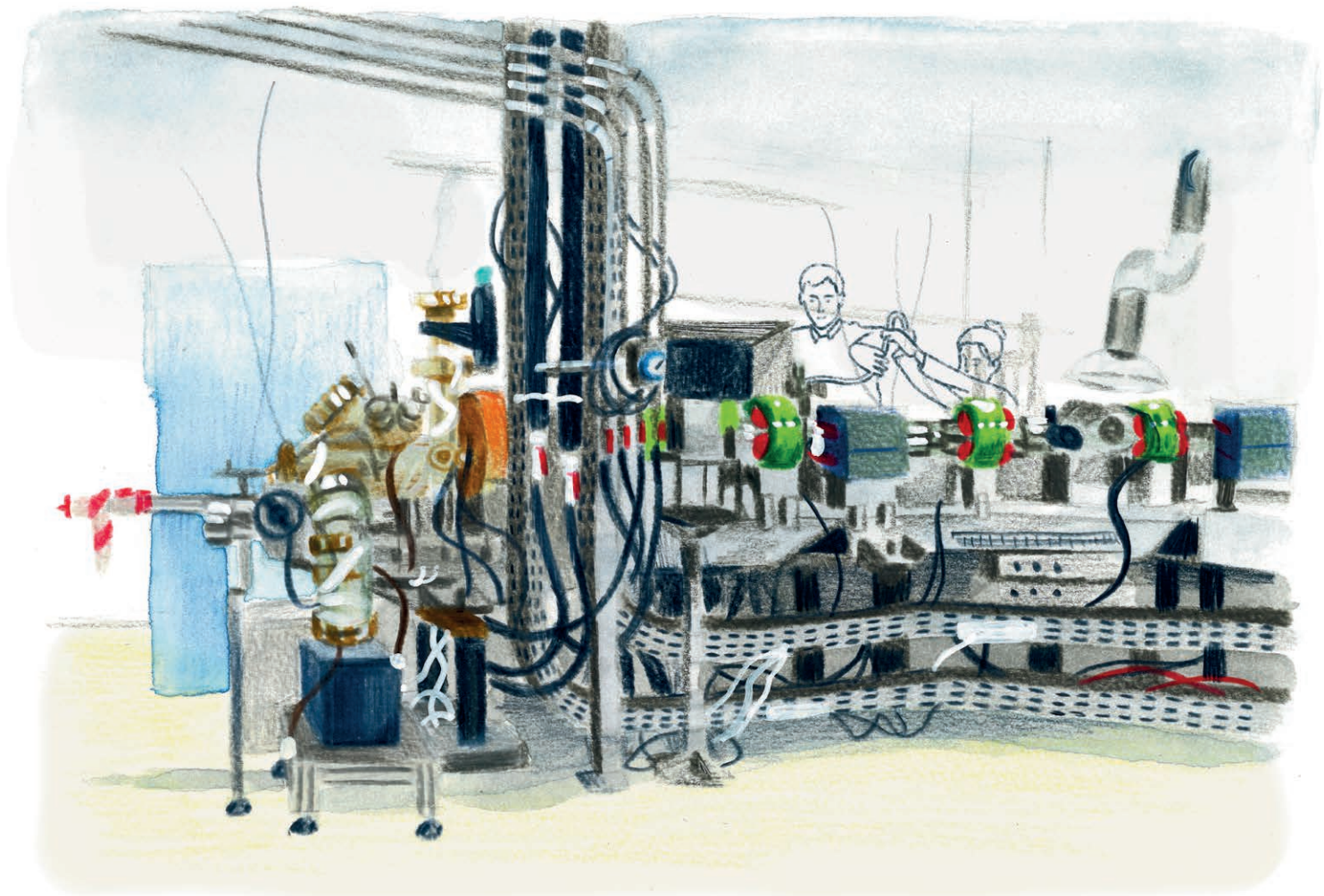
New day, new setting: today, I am discovering **ELYSE**, a unique electron accelerator at the Institut de Chimie Physique.

It is only **ten metres long**, yet it is nothing like a conventional particle accelerator. And still, it opens the door to a new world for chemists.

Here, the very first moments of chemical reactions are tracked, moments that last only **a few picoseconds**.

A laser triggers tiny packets of electrons that are sent toward the samples. Scientists and experimenters analyse then the light emitted, as if leafing through a photo album: image by image, the story of the chemical reaction is revealed... This is a place where time can be read through light.

**Now it's my turn to capture these fleeting moments.**



Stop 5

# Friday - 2h30pm

Weather:



Travel time: 1h20

Arrival time: 13h

Departure time: 17h45

**MICROSCOPY,  
BIOLOGY,  
MATERIALS**

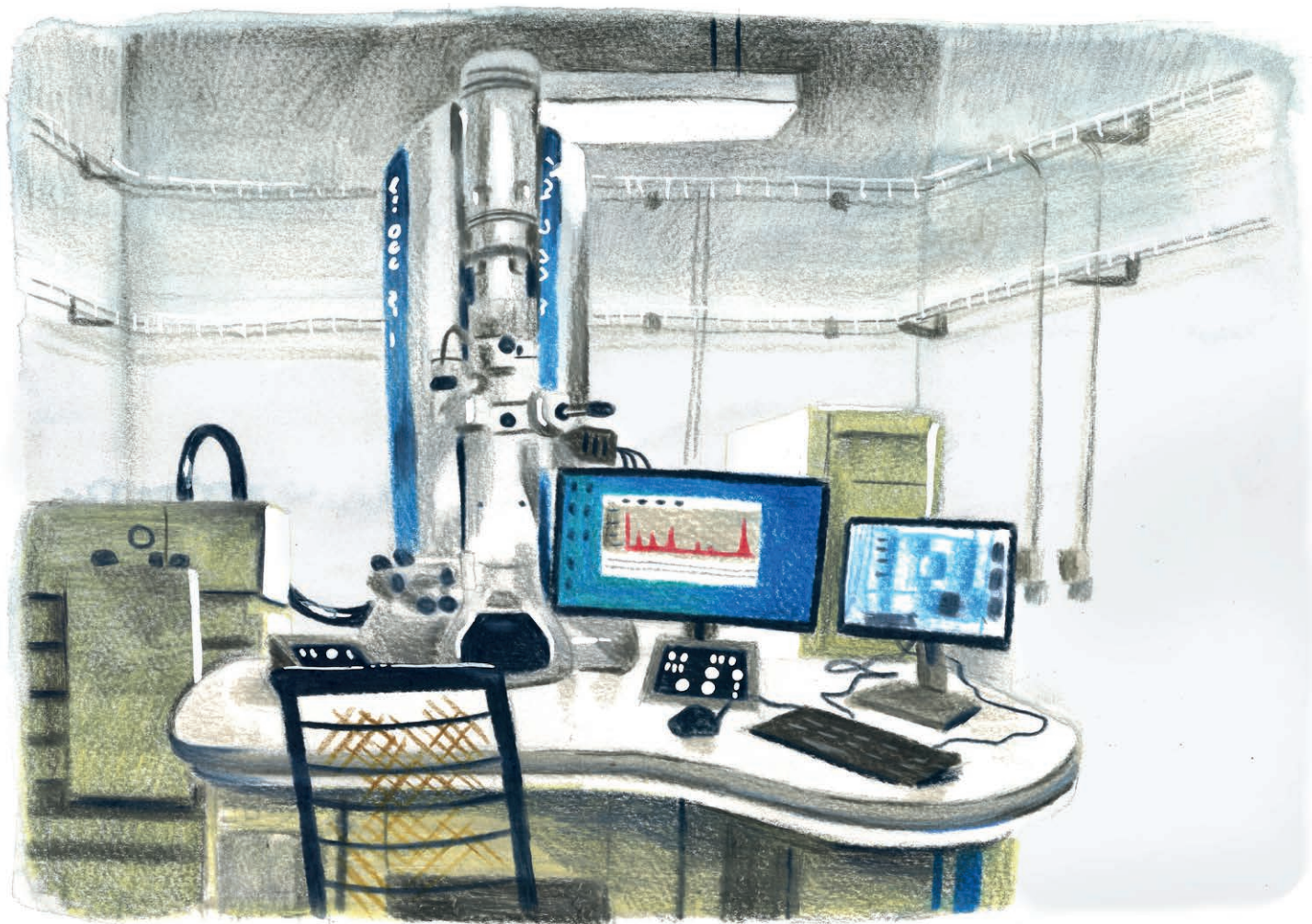
Today, I am taking a look at the **MET**, the Transmission Electron Microscope used by the Institut de Chimie Moléculaire et des Matériaux d'Orsay.

At first glance, it looks nothing like an optical microscope. Here, it is not light but **electrons** that are propelled through an **ultra-high vacuum** column and at extremely high speed toward the samples! Thanks to their **quantum** properties, these electrons interact with **atoms**, allowing observations across an extraordinary range of scales, from the diameter of a hair down to the nanometre.

I find myself diving into a cell, into the heart of a virus, among interstellar particles or into the study of metals and their deformations.

How can I reveal the power of such an instrument with my simple brushes?

**The challenge is mine.**



Stop 6

# Monday-9am

Weather:



Travel time: 1h10

Arrival time: 9h15

Departure time: 13h

**MATHEMATICS**

*This morning I am visiting the **Laboratoire des Mathématiques d'Orsay**, set in lush green surroundings. Here, the **blackboard** takes the center stage, even in the gardens!*

*Harmonic analysis, algebraic geometry, topology... these mysterious fields reveal a fascinating **diversity**.*

*A few equations remain on the walls, the last traces of **animated debates**. A spirit of exchange fills the space. Are mathematics an universal language?*

*Yes, but it is also a **collective adventure**.*

*Now I must try to give form to these peaks of abstraction...*



Stop 7

# Tuesday-9am

Weather:



Travel time: 1h10

Arrival time: 9h15

Departure time: 13h

**MATERIALS  
PHYSICS,  
LASER**

*New place, new rooms: today I am at the **Institut des Sciences Moléculaires d'Orsay**.*

*In front of me, pumps, lenses, lasers, and even an ultra-high vacuum tunnel are all lined up... This is not just one, but **five advanced experiments** running simultaneously in this machine.*

*And it's not just about **shining light**, flashes are sent so briefly that they reveal the mysteries of matter on an unprecedented scales!*

*Now I have to solve a mystery: how can I make visible something that lasts just only a millionth of a billionth of a second?*

***Time to let colors capture this moment.***



Stop 8

# Wednesday-10am

Weather:



Travel time: 1h10

Arrival time: 9h15

Departure time: 13h

**BRAIN,  
PROSTHESIS,  
LEARNING**

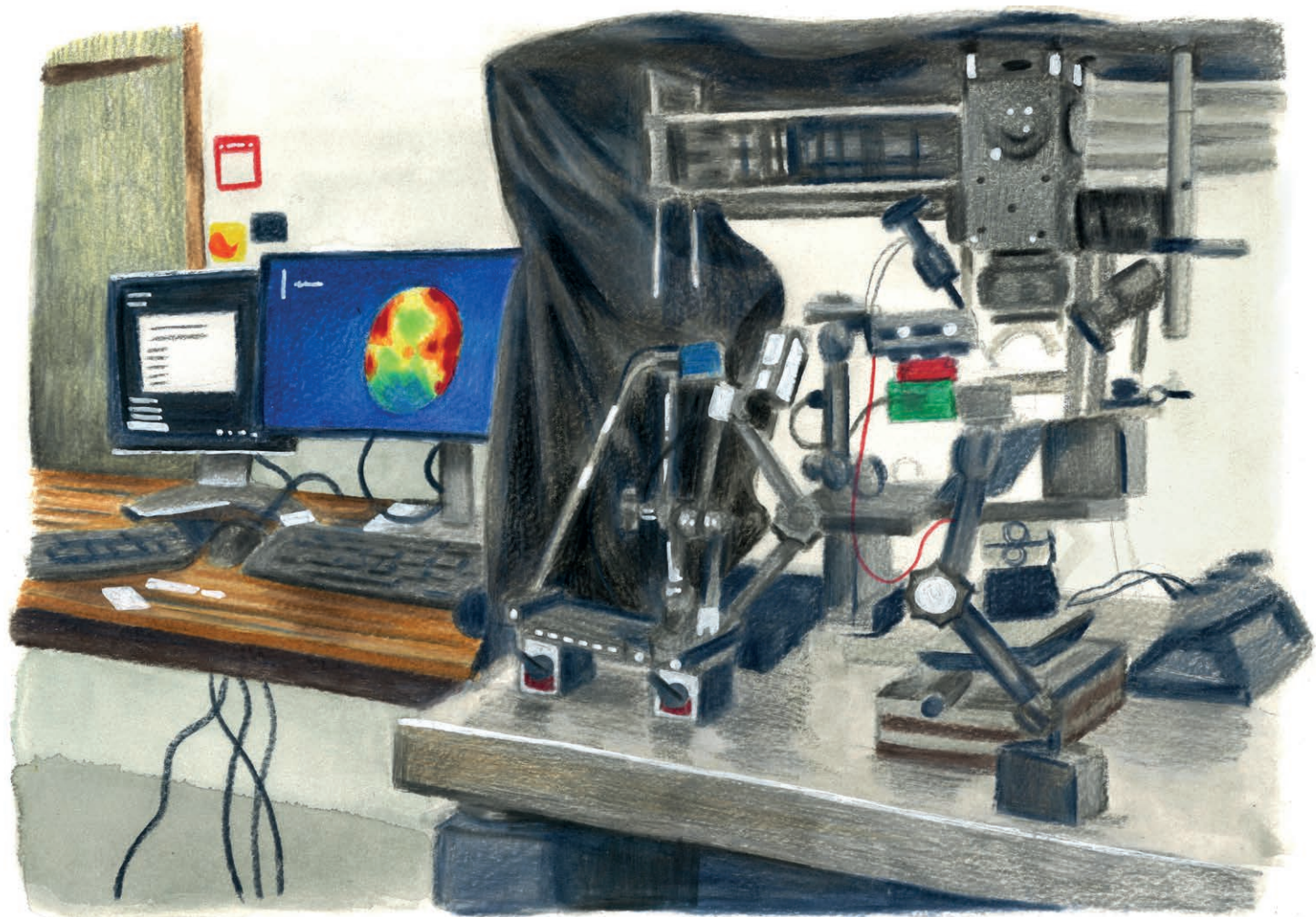
*This morning, I am discovering the **Institut des Neurosciences Paris-Saclay**.*

*In this lab, I am surrounded by an incredible array of high-tech prosthetics, motors, robotic arms, cameras, and detectors. It is a complete toolkit for understanding **the brain and its behavior**.*

*The real challenge here is **improving the quality of life** for people using prosthetics and **reducing their pain**.*

*But how can I capture an experiment that seeks to explore what is the most intimate to us: our brain?*

***Time to put mine to work!***



Stop 9

# Thursday-9am

Weather:



Travel time: 1h45

Arrival time: 10h30

Departure time: 13h

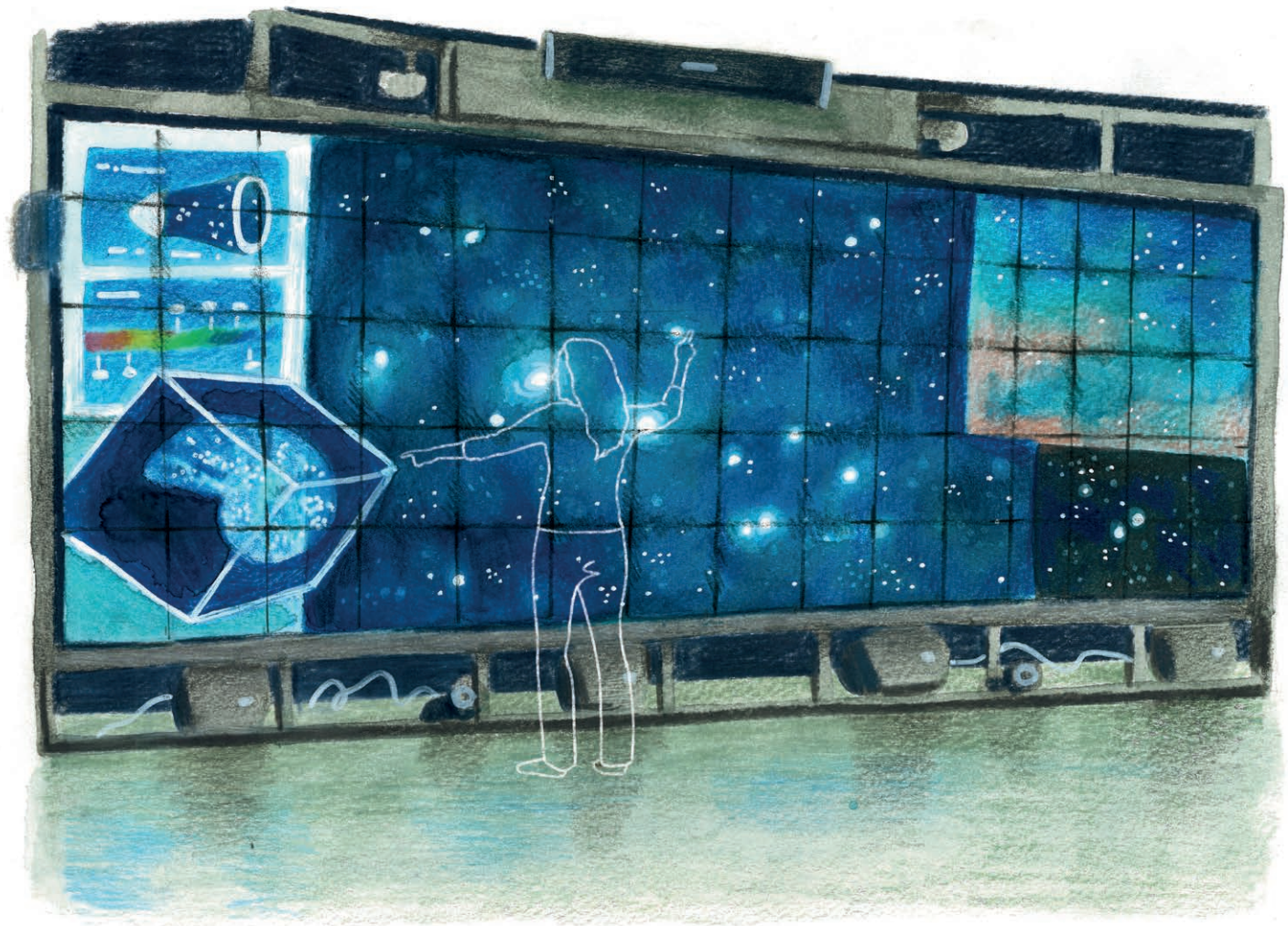
**ASTROPHYSICS  
COMPUTER  
SCIENCE**

Today, I am discovering the **WILDER** platform at the **Laboratoire Interdisciplinaire des Sciences du Numérique**.

I stand in front of **75 high-definition screens** displaying the most incredible images. They are ready to be explored and analyzed in the **finest detail**, from molecules to works of art.

Suddenly, I am projected into the cosmos. The very recent images from the **Euclid** satellite appear before me... A place where the smallest and the largest things are revealed in exquisite detail.

**Now, it's my turn to reveal the beauty of the Universe.**



Stop 10

Friday-9:30am

Weather:



Travel time: 1h45

Arrival time: 10h30

Departure time: 13h

**GEOSCIENCES**

*The final stop of my journey takes me to the **Laboratoire des Géosciences Paris-Saclay**.*

*I see incredible **rocks** in every corners: granite, limestone, sandstone, basalt and many more. Here, **samples** are ready to be **analyzed** to reveal the hidden secrets of Earth.*

*One instrument catches my eyes: the **laser granulometer**. This tool measures particle sizes and provides insight into the distribution of clays and sands. A way of unlocking the **mysteries** of our subsols...*

*Now it's up to me to uncover the secrets that lie beneath our feet.*





*This is the end of this uncommon journey. Through her brushes, Léna has shown us that research is diverse and often unexpected. It doesn't always look the way we imagine: sometimes it hides in a melon in a greenhouse, and sometimes it is sketched on a blackboard in a garden.*

*Léna's watercolors reveal that a scientific campus may seem ordinary at first glance. But if you looked closer, you'll discover the wildest machines, the most advanced research, the most astonishing technologies, the most precise discussions—and above all, passionate women and men.*



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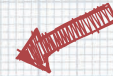
*This project was developed by the Service Communication, Médiation et Patrimoine Scientifiques (Faculté des Sciences d'Orsay, Université Paris-Saclay) and «La Physique Autre-ment» team (Université Paris-Saclay, CNRS).*

**Illustrations, graphic and digital design :** Léna MARTY.

**Script and scientific content :** Léa REMAUD, Anaïs VERGNOLLE and Julien BOBROFF.

## Many thanks to the laboratories that hosted us:

- Groupe d'Histoire et Diffusion des Sciences d'Orsay (**GHDSO** - Univ Paris-Saclay),
- Institut de Chimie Physique (**ICP** - Univ Paris-Saclay/CNRS),
- Institut de Chimie Moléculaire et des Matériaux d'Orsay (**ICMMO** - Univ Paris-Saclay/CNRS),
- The MET was purchased thanks to the collaboration of six units of Université Paris-Saclay. It is located at CentraleSupélec.
- Institut Diversité Écologie et Évolution du Vivant (**IDEEV** - Univ Paris-Saclay/CNRS/INRAE/AgroParisTech/IRD),
- Institut des Neurosciences Paris-Saclay (**NeuroPSI** - Univ Paris-Saclay/CNRS),
- Institut des Sciences Moléculaires d'Orsay (**ISMO** - Univ Paris-Saclay/CNRS),
- Laboratoire Géosciences Paris-Saclay (**GEOPS** - Univ Paris-Saclay/CNRS),
- Laboratoire Interdisciplinaire des Sciences du Numérique (**LISN** - Univ Paris-Saclay/INRIA/CS/Institut Cognition/DATAIA/CNSR),
- Laboratoire de Mathématiques d'Orsay (**LMO** - Univ Paris-Saclay/CNRS),
- Laboratoire de physique des deux infinis Irène Joliot-Curie (**IJCLab** - Univ Paris-Saclay/Univ Paris-Cité/CNRS).







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LA PHYSIQUE  
AUTREMENT



We sent an **illustrator** into **ten labs** at the  
**Faculté des Sciences** of l'**Université Paris-Saclay**.

Her mission: to capture research in progress!