

The EPFL logo, consisting of the letters 'EPFL' in a bold, red, sans-serif font.The ETH zürich logo, featuring the text 'ETH zürich' in a white, sans-serif font on a dark blue rectangular background.An aerial photograph of the EPFL campus in Lausanne, Switzerland. The image shows modern university buildings with glass facades and flat roofs, interspersed with green spaces and trees. In the background, a large body of water (Lake Geneva) is visible under a cloudy sky.

EPFL-ETHZ-PSI Master Program in Nuclear Engineering

Journée d'Accueil EPFL, 04/09/2026

- General information about the program
- A word from few partners
- Intro to PHYS-451/ Tour of CROCUS
- Apéro by the lake

**Prof. Andreas
Pautz**



Annalisa Manera
Reactor Technology



Andreas Pautz
Reactor Physics

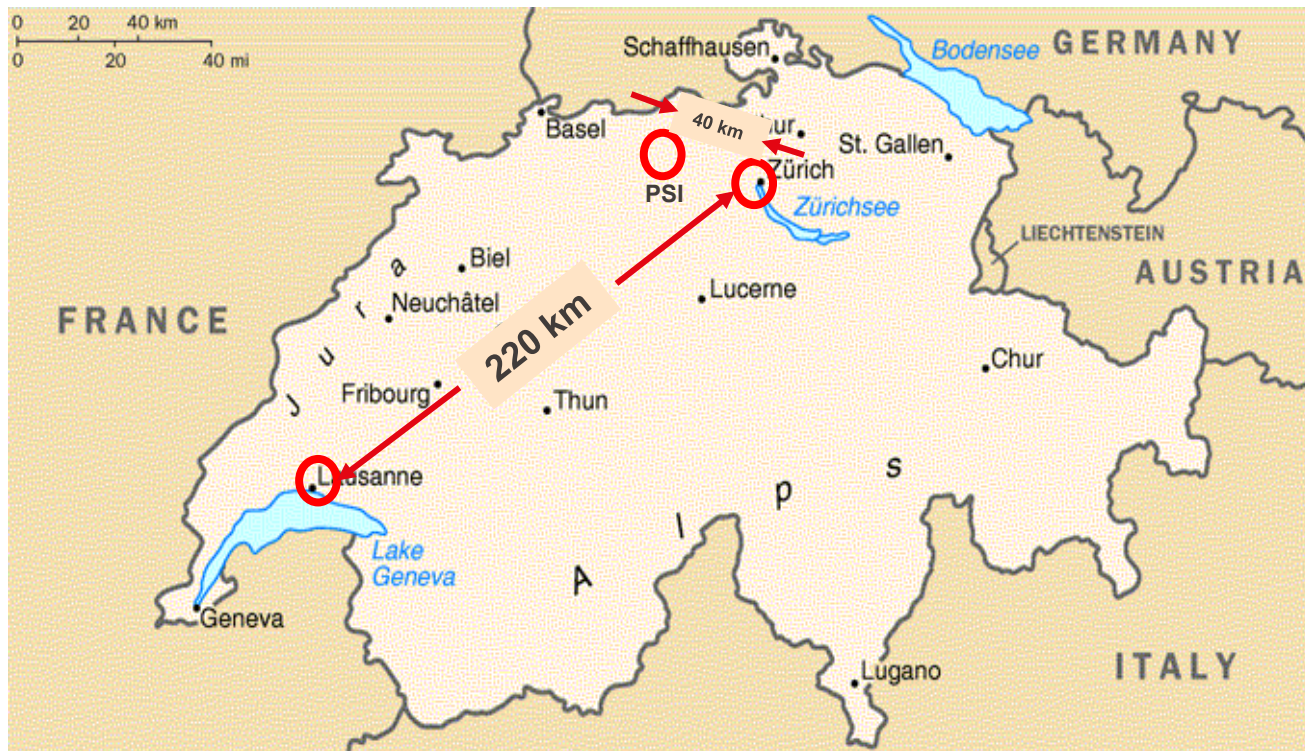


The Swiss Nuclear Engineering Master Program



- First (and for a long time the only) joint degree of the two Swiss Federal Institutes of Technology
 - École Polytechnique Fédérale de Lausanne (EPFL)
 - Eidgenössische Technische Hochschule Zürich (ETHZ)
- Important synergies with Paul Scherrer Institut (PSI), Villigen
 - The Center for Nuclear Engineering and Sciences (NES) at PSI (6 laboratories, ~ 230 scientists and technicians) is the **national center of excellence for nuclear energy and safety research**
- Your batch (2026) is the nineteenth to follow our four-semester curriculum (started in 2008)

Location of the Three Nuclear Schools



Aerial View of Paul Scherrer Institut (PSI)



General Scope of the Nuclear Engineering Master Program

Focus:

- Fundamentals & technology of employing nuclear fission for a safe and sustainable energy supply

Complement:

- Nuclear techniques in medicine & industry, and also nuclear fusion

Integration into energy systems as a whole, considering:

- *Nuclear + Renewables + Efficient energy use = Sustainability of energy supply*

Degree open to Bachelors in various disciplines

- Physics, Chemistry, Mechanical, Chemical, Civil and Electrical Engineering and more: nuclear engineering requires a high level of interdisciplinarity!

Main Program Features - 1

- Degree awarded
 - *Master of Science EPF-ETH in Nuclear Engineering*
- Combines the strengths of the nuclear schools of Switzerland
 - 1st semester (autumn) - students attend courses at Lausanne
 - 2nd semester (spring) - students attend courses at Zurich
 - 3rd semester (autumn) - students at PSI
 - 4th semester (spring) - Master's thesis at PSI/EPFL/ETHZ
- Some flexibility and individuality granted by spectrum of elective courses
- Tutor aided program: a professor to be identified by each student

Teaching Personnel, Tutors

▪ Professors

- A. Pautz (EPFL), A. Manera (ETHZ)
- Others at EPFL: M.Q. Tran, A. Fasoli, F. Bochud, M. Seidel,...
- Others at ETHZ: K. Boulouchos, P. Jenny, R. Abhari,...

- This semester you will work and study with part of the team from the Laboratory for Reactor Physics and System Behavior (LRS):



Mathieu Hursin



Vincent Lamirand



Oskari Pakari



Ludovic Jantzen



Giovanni Ronchi



Michel Saliba



Alexis Dupont-
Bembinoff



Milica Krstovic



Daniele Timpano



Linyi Yang

Teaching Personnel, Tutors

- **Professors**

- A. Pautz (EPFL), A. Manera (ETHZ)
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- This semester you will work and study with part of the team from the Laboratory for Reactor Physics and System Behavior (LRS):

- **Tutors**

- Entirely advisory role, research supervisor may be another person
- Andreas Pautz, Quang Minh Tran at EPFL
- Annalisa Manera, Tony Lomax at ETHZ

A few words on Quang Tran



- Prof. Emeritus of Plasma Physics
- I was one of the founding fathers of the MNE programme, and have been functioning as “Tutor” since the beginning.
- After my “real” retirement in 2021, I kept some activities such as “Advisor” for the European Strategic Working Group ENERGY of European Strategic Forum for Research Infrastructure, in 2024-2025, Visiting Professor at the Academia Sinica Institute of Plasma Physics as Special Advisor for Heating and Current Drive of tokamak plasma or experts for Fusion for Energy and the Helmholtz Society.
- Contact: minhquang.tran@epfl.ch. Answer will be given with 48 hours (normally!). Otherwise please send a reminder.



Courses, Semester Project, Internship

- Eleven compulsory courses: **50 ECTS**
- **4 ECTS** from School of Management or Humanities course during 1st or 2nd semester
- Elective courses: **20 ECTS**, 8 ECTS thereof can in principle be freely selected from EPFL/ETH master courses (tutor's agreement needed), the remaining ones from approved list of elective core courses
- Industrial internship: **8 ECTS** (conducted partly outside semesters)
- Mandatory semester project: **8 ECTS** (during 3rd semester, at PSI), voluntary semester project (8 ECTS) any time in semester 1-3
- Master thesis (during the 4th semester): **30 ECTS**

Elective Core Courses



Code	Matières		Enseignants	Section s	Semestres								Crédits			Nbre places	Période des	Type examen *
			sous réserve		MA1	MA2	MA3											
			de modification		EP FL	ET HZ	PS I						EPFL	ETHZ	PSI		épreuves *	
	Groupe 2 "Elective core courses"												-	20				
ETH-441	Advanced Techniques for the Risk Analysis of Technical Systems		Sansavini	ETHZ		2	1						4				E	**
ETH-427	Biomedical Imaging		Kozerke/Prüssmann	ETHZ		5							6				E	**
ETH-433	Computational Multiphase Thermal Fluid Dynamics		Prasser/Dehbi/Niceno	ETHZ		2	1						4				E	**
ETH-444	Computational Neuroimaging Clinic		Stephan	ETHZ		2							3				E	**
PHYS-490	Elective project nuclear engineering		Divers enseignants		← 8 →									8			sem A	
ETH-454	Electrochemical Energy Conversion and Storage Technologies		Gubler/Fabbri/Herranz Salañer	ETHZ		3							4				E	**
ME-409	Energy conversion and renewable energy		Maréchal/Nguyen T.-V.	GM	2	1	1						4				H	écrit
PHYS-405	Experimental methods in physics		Dwir/Cantoni	PH/MX	2	1							3				H	oral
ME-453	Hydraulic turbomachines		Vagnoni	GM	3	1							4				H	écrit
MICRO-511	Image processing I		Unser/Van De Ville	MT	3								3				H	écrit
PHYS-455	Introduction to medical radiation physics		Bochud	PH	2	1							4				H	écrit
PHYS-448	Introduction to particle accelerators		Seidel	PH	2	2							4				H	écrit
ETH-445	Introduction to Quantum Mechanics for Engineers		Norris	ETHZ		2	2						4				E	**
ETH-446	Magnetic Resonance Imaging in Medicine		Kozerke/Weiger	ETHZ		3							4				E	**
ETH-442	Materials Analysis by Nuclear Techniques		Doebeli	ETHZ		2	1						6				E	**
ETH-452	Medical Physics II		Manser	ETHZ		2	1						6				E	**

Elective Core Courses

Code	Matières		Enseignants sous réserve	Sections	Semestres								Crédits			Nbre places	Période des	Type examen *
			de modification		MA1 EP FL		MA2 ET HZ		MA3 PS I			EPFL	ETHZ	PSI		épreuves *		
	Groupe 2 "Elective core courses"											-	20					
ETH-453	Micro and Nano-Tomography of Biological Tissues		Stampanoni/Kaestner	ETHZ			3						4			E	**	
ETH-447	Monte Carlo in Medical Physics		Stampanoni/Fix	ETHZ			3						4			E	**	
ETH-434	Multiphase Flow		TBD	ETHZ			3						4			E	**	
PHYS-640	Neutron and X-ray Scattering of quantum materials		Fogh/Schmitt	PH	2	2						4				H	oral	
PHYS-445	Nuclear fusion and plasma physics		Fasoli	PH	2	2						4				H	oral	
MATH-468	Numerics for fluids, sructures and electromagnetics (pas donné en 24-25)		vacat	MA	2	2						5				H	oral	
ETH-443	Physics Against Cancer: The Physics of Imaging and Treating Cancer		Lomax/Schneider	ETHZ			2	1					6			E	**	
ETH-404	Physics of Nuclear Reactor II		Pelloni/Mikityuk/Pautz	ETHZ			3						4			E	**	
PHYS-423	Plasma I		Theiler	PH	2	3						6				H	oral	
PHYS-452	Radiation detection		Lamirand	PH	2	1						4				H	oral	
ETH-448	Radiation Imaging for Industrial Applications		Prasser/Adams	ETHZ			2	1					4			E	**	
ETH-449	Therapeutic Applications of Particle Physics: Principles and Practice of Particle Therapy		Lomax	ETHZ			2	1					6			E	**	
	"Free" elective courses																	
---	Master courses from the catalogue of courses EPFL or ETHZ (provided the tutor supports this choice)		Divers enseignants	Divers								max. 8 credits				H ou E	**	

Points to Note - 1

- **Choice of electives relatively uniform in the 3 semesters**
 - 1st Sem... 3 compulsory courses + management course(s)
 - 2nd Sem... 4 compulsory courses + management course(s)
 - 3rd Sem... 4 compulsory (block) courses + 8-credit Internship + 8-credit semester project (at PSI)

- **“Free” electives (total: 8 ECTS) can be one of the following:**
 - An extra NE elective (any of the above list)
 - An Other-Master elective which reinforces your “strengths”/interests
 - An Other-Master elective which strengthens your “weaknesses” and/or broadens your basic knowledge

Points to Note - 2

- There is time to decide on options until Friday, **September 18th** (deadline)
 - Worth “visiting” alternatives during these first 2 weeks
- Exam session from **January 11th to 30th 2027**
- Deadline to unregister to an exam is **November 20th**
- **Monday, September 21st is a holiday – no class! (Lundi du Jeûne)**
- **Semester break: 17th to 25th October 2026 – no class**

4-Credit Course in Entrepreneurship

- Both at EPFL and ETHZ, each Master student must have had a minimum number of “non-technical” credits
- For the NE Master, the 1st and 2nd semester is foreseen for clearing this condition
 - Minimum of 4 credits in Humanities, Financial Engineering or Management of Technology (MTE-xxx or FIN-xxx courses at EPFL)

These courses can be taken at either EPFL or ETHZ

Time Table – Nuclear Engineering Master



PSI

Horaire	Salles			Matières	Engagements
LUNDI					
09:15-12:00	MEB331	C	OPT	Hydraulic turbomachines	Enseignant-e(s): Vagnoni Elena
10:15-11:00	SG0211	E	OPT	Energy conversion and renewable energy	Enseignant-e(s): Maréchal François, Nguyen Tuong-Van
11:15-13:00	SG0211	C	OPT	Energy conversion and renewable energy	Enseignant-e(s): Maréchal François, Nguyen Tuong-Van
12:15-13:00	MEB331	E	OPT	Hydraulic turbomachines	Enseignant-e(s): Vagnoni Elena
13:15-14:00	SG0211	P	OPT	Energy conversion and renewable energy	Enseignant-e(s): Maréchal François, Nguyen Tuong-Van
13:15-15:00	INR219	C	OPT	Nuclear fusion and plasma physics	Enseignant-e(s): Fasoli Ambrogio
15:15-17:00	INR219	E	OPT	Nuclear fusion and plasma physics	Enseignant-e(s): Fasoli Ambrogio
MARDI					
08:15-10:00 PHYS-451 Rad. Exp.	PHxx	T	OBL	<u>Radiation and reactor experiments</u> Salle(s) ou Labo(s) selon enseignant(s) Groupe 2/2	Enseignant-e(s): Hursin Mathieu, Lamirand Vincent Pierre, Pakari Oskari Ville
PHYS-443 Phys. Nucl. Reactors	INM11	C	OBL	<u>Physics of nuclear reactors</u>	Enseignant-e(s): Hursin Mathieu, Pautz Andreas
	INM11	E	OBL	<u>Physics of nuclear reactors</u>	Enseignant-e(s): Hursin Mathieu, Manera Annalisa, Pautz Andreas
MERCREDI					
08:15-10:00 PHYS-451 Rad. Exp.	PHxx	T	OBL	<u>Radiation and reactor experiments</u> Salle(s) ou Labo(s) selon enseignant(s) Groupe 1/2	Enseignant-e(s): Hursin Mathieu, Lamirand Vincent Pierre, Pakari Oskari Ville
PHYS-443 Phys. Nucl. Reactors	BS150	C	OBL	<u>Physics of nuclear reactors</u>	Enseignant-e(s): Hursin Mathieu, Pautz Andreas
	BS150	E	OBL	<u>Physics of nuclear reactors</u>	Enseignant-e(s): Hursin Mathieu, Manera Annalisa, Pautz Andreas

Time Table – Nuclear Engineering Master



JEUDI

08:15-10:00	CO123	C	OPT	Plasma I
09:15-11:00	BS150	C	OPT	Radiation detection
10:15-11:00	CO123	E	OPT	Plasma I
10:15-12:00	CM3	C	OPT	Image processing I
11:15-12:00	BS150	E	OPT	Radiation detection
12:15-13:00	CM3	E	OPT	Image processing I
13:15-15:00	BSP626	C	OPT	Introduction to particle accelerators
15:15-17:00	BSP626	E	OPT	Introduction to particle accelerators

VENREDI

09:15-11:00	CHB2355	C	OPT	Introduction to medical radiation physics
11:15-12:00	CHB2355	E	OPT	Introduction to medical radiation physics
13:15-15:00	INF119	E	OPT	Plasma I
PHYS-450	MAA110	C	OBL	<u>Radiation biology, protection and applications</u>
Rad. Bio.	MAA110	E	OBL	<u>Radiation biology, protection and applications</u>

Enseignant-e(s): Theiler Christian Gabriel
 Enseignant-e(s): Lamirand Vincent Pierre
 Enseignant-e(s): Theiler Christian Gabriel
 Enseignant-e(s): Preti Maria Giulia, Unser
 Michaël, Van De Ville Dimitri Nestor Alice
 Enseignant-e(s): Lamirand Vincent Pierre
 Enseignant-e(s): Preti Maria Giulia, Unser
 Michaël, Van De Ville Dimitri Nestor Alice
 Enseignant-e(s): Pieloni Tatiana
 Enseignant-e(s): Pieloni Tatiana

Enseignant-e(s): Bochud François
 Enseignant-e(s): Bochud François
 Enseignant-e(s): Theiler Christian Gabriel
 Enseignant-e(s): Damet Jerome, Grilj
 Veljko, Pakari Oskari Ville
 Enseignant-e(s): Damet Jerome, Grilj
 Veljko, Pakari Oskari Ville

Examples for Courses in Entrepreneurship at EPFL (1)

**Financial
Engineering**

Horaire	Salles			Matières	Engagements
LUNDI					
09:15-12:00	INR219	C	OPT	Sustainable Finance	Enseignant-e(s): Velez Mão de Ferro Ana Alexandra
10:15-12:00	MAA330	C	OPT	Advanced numerical analysis II	Enseignant-e(s): Picasso Marco
13:15-15:00	CM1106	C	OBL	Advanced derivatives	Enseignant-e(s): Perazzi Elena
14:15-16:00	ELA1	E	OBL	Introduction to econometrics	Enseignant-e(s): Aklin Michaël
15:15-16:00	CM1106	E	OBL	Advanced derivatives	Enseignant-e(s): Perazzi Elena
MARDI					
08:15-10:00	INR219	C	OPT	Mathematical modelling of behavior	Enseignant-e(s): Bierlaire Michel
08:15-10:00	CM1221	E	OPT	Regression methods	Enseignant-e(s): Limnios Myrto
08:15-11:00	SG0211	C	OBL	Probability and stochastic calculus	Enseignant-e(s): Perazzi Elena
08:15-11:00	CM1120	C	OBL	Quantitative financial risk management	Enseignant-e(s): Filipovic Damir
10:15-12:00	CO021	E	OPT	Mathematical modelling of behavior	Enseignant-e(s): Bierlaire Michel
10:15-12:00	INR219				
10:15-12:00	CM1221	C	OPT	Regression methods	Enseignant-e(s): Limnios Myrto
10:15-12:00	SG0211	E	OBL	Probability and stochastic calculus	Enseignant-e(s): Perazzi Elena
10:15-12:00	MAA330	C	OPT	Statistical machine learning	Enseignant-e(s): Limnios Myrto, Obozinski Guillaume Romain
10:15-12:00	INM202	C	OPT	Financial big data	Enseignant-e(s): Challet Damien
10:15-12:00	INF213	C	OPT	Data science for business	Enseignant-e(s): Li Mengmeng, Niu Yanan
15:15-17:00	CM2	C	OBL	Introduction to econometrics	Enseignant-e(s): Aklin Michaël
15:15-17:00	MAA330	E	OPT	Statistical machine learning	Enseignant-e(s): Limnios Myrto, Obozinski Guillaume Romain
16:15-18:00	RLC E1 240	C	OPT	Machine learning	Enseignant-e(s): Flammarion Nicolas Henri Bernard, Jaggi Martin
MERCREDI					
08:15-10:00	ELA1	C	OPT	Cryptography and security	Enseignant-e(s): Vaudenay Serge
08:15-10:00	RLC E1 240	C	OPT	Applied data analysis	Enseignant-e(s): West Robert
08:15-10:00	CM1111	T	OPT	Machine learning programming	Enseignant-e(s): Billard Aude
08:15-10:00	CM1112				
09:15-12:00	ODY016	C	OBL	Interest rate and credit risk models	Enseignant-e(s): Filipovic Damir
09:15-12:00	BS150	C	OPT	Information: strategy & economics	Enseignant-e(s): Weber Thomas Alois
10:15-12:00	CO1	C	OBL	Convex optimization	Enseignant-e(s): Kuhn Daniel
10:15-12:00	CE1100	C	OPT	Numerical integration of stochastic differential equations	Enseignant-e(s): Nobile Fabio
10:15-12:00	RLC E1 240	C	OPT	Machine learning	Enseignant-e(s): Flammarion Nicolas Henri Bernard, Jaggi Martin
10:15-12:00	MAA110	C	OPT	Numerical analysis and computational mathematics	Enseignant-e(s): Grigori Laura
10:15-12:00	INJ218	E	OBL	Quantitative financial risk management	Enseignant-e(s): Filipovic Damir
10:15-12:00	CE1100	E	OPT	Numerical integration of stochastic differential equations	Enseignant-e(s): Nobile Fabio
10:15-12:00	MAB1486	E	OPT	Numerical analysis and computational mathematics	Enseignant-e(s): Grigori Laura
16:15-19:00				SHS : Introduction au projet	

Examples for Courses in Entrepreneurship at EPFL (2)

JEUDI

08:15-10:00	MAA330	E	OPT	Statistical analysis of network data
08:15-11:00	MEB331	C	OBL	Accounting for finance
09:15-10:00	CO3	C	OPT	Machine learning I
09:15-12:00	ODY016	C	OBL	Ethical behavior in the financial industry
10:15-12:00	CM5	C	OPT	Cryptography and security
10:15-12:00	MAA330	C	OPT	Statistical analysis of network data
10:15-13:00	BC07-08	C	OPT	Machine learning I
	CE12			
	CM1103			
13:15-15:00	ODY016	C	OBL	Introduction to finance
13:15-15:00	BS270	E	OBL	Interest rate and credit risk models
13:15-15:00	BC02	C	OPT	Nature finance
14:15-16:00	CO123	E	OPT	Machine learning

INF1
INF119
INJ218
INM202
INR219

15:15-16:00	ODY016	P	OBL	Introduction to finance
16:15-19:00	INR219	C	OPT	Venture capital

VENDREDI

08:15-11:00	CM5	C	OPT	Principles of microeconomics
09:15-11:00	CM1	E	OPT	Cryptography and security
10:15-12:00	CO1	E	OBL	Convex optimization
11:15-12:00	CM5	E	OPT	Principles of microeconomics

PHYS-450
Rad. Bio.

	SG0211	E	OBL	Introduction to finance
	GCA330	E	OPT	Advanced numerical analysis II
	CM1104	E	OPT	Data science for business
	BCH2201	P	OPT	Applied data analysis
	CE14			
	GCC330			

Enseignant-e(s): Olhede Sofia Charlotta
Enseignant-e(s): Cauvin Eric
Enseignant-e(s): Billard Aude
Enseignant-e(s): Nahas Aziz
Enseignant-e(s): Vaudenay Serge
Enseignant-e(s): Olhede Sofia Charlotta
Enseignant-e(s): Billard Aude

Enseignant-e(s): Morellec Erwan
Enseignant-e(s): Filipovic Damir
Enseignant-e(s): Coutu Sylvain
Enseignant-e(s): Flammarion Nicolas Henri
Bernard, Jaggi Martin

Enseignant-e(s): Morellec Erwan
Enseignant-e(s): Fahlenbrach Rüdiger

Enseignant-e(s): Kis Alexandra Marie
Vitaline
Enseignant-e(s): Vaudenay Serge
Enseignant-e(s): Kuhn Daniel
Enseignant-e(s): Kis Alexandra Marie

Enseignant-e(s): Morellec Erwan
Enseignant-e(s): Picasso Marco
Enseignant-e(s): Li Mengmeng, Niu Yanan
Enseignant-e(s): West Robert

Examples for Courses in Entrepreneurship at EPFL (3)



LUNDI

09:15-12:00	ODY016	C	OPT	Corporate strategy
09:15-12:00	SG0213	C	OPT	Strategic management of innovation
09:15-12:00	INR219	C	OPT	Sustainable Finance
10:15-13:00	ELA1	C	OPT	Mathematics of data: from theory to computation
13:15-16:00	ODY016	C	OPT	Value chain management in practice
14:15-16:00	ELA1	E	OBL	Introduction to econometrics
14:15-16:00	BS150	C	OPT	Machine learning for predictive maintenance applications
16:15-18:00	ODY016	C	OPT	Technology, sustainability and public policy

Enseignant-e(s): Schad Jonathan Leon Fabian

Enseignant-e(s): Piveteau Laurent-Dominique

Enseignant-e(s): Velez Mão de Ferro Ana Alexandra

Enseignant-e(s): Cevher Volkan

Enseignant-e(s): Riboni Stefano

Enseignant-e(s): Aklin Michaël

Enseignant-e(s): Fink Olga

Enseignant-e(s): Aklin Michaël

MARDI

08:15-10:00	ODY016	E	OPT	Technology, sustainability and public policy
10:15-12:00	CO2	E	OBL	Principles of finance
10:15-12:00	ELG120	C	OPT	Economics for challenging times

Enseignant-e(s): Aklin Michaël

Enseignant-e(s): Morellec Erwan

Enseignant-e(s): Gallea Quentin, Laurent-Lucchetti Jérémy, Thoenig Mathias Benjamin

Enseignant-e(s): Gallea Quentin, Laurent-Lucchetti Jérémy, Thoenig Mathias Benjamin

Enseignant-e(s): Li Mengmeng, Niu Yanan

Enseignant-e(s): Baldwin Richard Edward

13:15-15:00	ELG120	C	OPT	Economics for challenging times
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13:15-16:00	INF213	C	OPT	Data science for business
13:15-17:00		C	OPT	Sustainability in the global context

15:15-16:00	ODY-10020	C	OPT	Courses given on IMD Campus
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Open Innovation Lab

Enseignant-e(s): Bergamini Enrico, Cudré-Mauroux Nicolas Patrice

15:15-17:00	CM2	C	OBL	Introduction to econometrics
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Enseignant-e(s): Aklin Michaël

16:15-18:00	RLC E1 240	C	OPT	Machine learning
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Enseignant-e(s): Flammarion Nicolas Henri Bernard, Jaggi Martin

16:15-18:00	CO2	C	OPT	Management de projet et analyse du risque
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Enseignant-e(s): Wieser Philippe

16:15-18:00	ODY-10020	P	OPT	Open Innovation Lab
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Enseignant-e(s): Bergamini Enrico, Cudré-Mauroux Nicolas Patrice

18:15-19:00	CO2	P	OPT	Management de projet et analyse du risque
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Enseignant-e(s): Wieser Philippe

Examples for Courses in Entrepreneurship at EPFL (4)

MERCREDI

08:15-10:00	RLC E1 240	C	OPT	Applied data analysis
09:15-12:00	BS150	C	OPT	Information: strategy & economics
10:15-12:00	RLC E1 240	C	OPT	Machine learning
10:15-12:00	CO1	C	OPT	Convex optimization
13:15-15:00	CM4	C	OBL	Principles of finance
13:15-15:00	CM1100	C	OPT	Foundations of digital humanities
13:15-16:00	ODY016	C	OBL	Performance Management
16:15-19:00				SHS : Introduction au projet

JEUDI

08:15-10:00	MED01418	E	OPT	Machine learning for predictive maintenance applications
08:15-11:00	MEB331	C	OBL	Accounting for finance
10:15-12:00	BC03	C	OPT	Foundations of digital humanities
10:15-12:00	MED01418	P	OPT	Machine learning for predictive maintenance applications
13:15-15:00	BC04	P	OPT	Foundations of digital humanities
13:15-15:00	CO010	C	OPT	Intercultural presentation skills
13:15-15:00	BC02	C	OPT	Nature finance
14:15-15:00	CM5	C	OPT	AI product management
14:15-16:00	CO123	E	OPT	Machine learning
	INF1			
	INF119			
	INJ218			
	INM202			
	INR219			
15:15-16:00	CM5	E	OPT	AI product management
	DIA004			
15:15-17:00	CO010	E	OPT	Intercultural presentation skills
16:15-17:00	CM5	C	OPT	AI product management
16:15-19:00	INR219	C	OPT	Venture capital
17:15-18:00	CM5	E	OPT	AI product management
	ELD120			

Enseignant-e(s): West Robert
 Enseignant-e(s): Weber Thomas Alois
 Enseignant-e(s): Flammarion Nicolas Henri
 Bernard, Jaggi Martin
 Enseignant-e(s): Kuhn Daniel
 Enseignant-e(s): Morellec Erwan
 Enseignant-e(s): Kaplan Frédéric
 Enseignant-e(s): Cauvin Eric

Enseignant-e(s): Fink Olga

Enseignant-e(s): Cauvin Eric
 Enseignant-e(s): Kaplan Frédéric
 Enseignant-e(s): Fink Olga

Enseignant-e(s): Kaplan Frédéric
 Enseignant-e(s): Everett Jane Elizabeth
 Enseignant-e(s): Coutu Sylvain
 Enseignant-e(s): Kaboli Amin, Roshan
 Zamir Amir
 Enseignant-e(s): Flammarion Nicolas Henri
 Bernard, Jaggi Martin

Enseignant-e(s): Kaboli Amin, Roshan
 Zamir Amir

Enseignant-e(s): Everett Jane Elizabeth
 Enseignant-e(s): Kaboli Amin, Roshan
 Zamir Amir

Enseignant-e(s): Fahlenbrach Rüdiger
 Enseignant-e(s): Kaboli Amin, Roshan
 Zamir Amir

Examples for Courses in Entrepreneurship at EPFL (5)

VENDREDI

08:15-09:00	GRA330	P	OPT	Innovation & entrepreneurship in engineering Selon indication de l'enseignant	Enseignant-e(s): Michaud Véronique, Weber Thomas Alois
08:15-10:00	DIA004	C	OPT	Intercultural presentation skills Groupe 2/2	Enseignant-e(s): Everett Jane Elizabeth
08:15-11:00	CM5	C	OBL	Principles of microeconomics	Enseignant-e(s): Kis Alexandra Marie Vitaline
09:15-11:00	GRA330	C	OPT	Innovation & entrepreneurship in engineering	Enseignant-e(s): Michaud Véronique, Weber Thomas Alois
10:15-12:00	CO1	E	OPT	Convex optimization	Enseignant-e(s): Kuhn Daniel
10:15-12:00	DIA004	E	OPT	Intercultural presentation skills Groupe 2/2	Enseignant-e(s): Everett Jane Elizabeth
11:15-12:00	CM5	E	OBL	Principles of microeconomics	Enseignant-e(s): Kis Alexandra Marie Vitaline
11:15-18:00	GRA330	P	OPT	Innovation & entrepreneurship in engineering Selon indication de l'enseignant	Enseignant-e(s): Michaud Véronique, Weber Thomas Alois
13:15-15:00	CM1221	C	OPT	Production management	Enseignant-e(s): Kaboli Amin
13:15-16:00	BC04	C	OPT	Strategic marketing & technology commercialization	Enseignant-e(s): Eckardt Thilo Hans Martin
14:15-15:00	CM1104	E	OPT	Data science for business	Enseignant-e(s): Li Mengmeng, Niu Yanan
15:15-17:00	BCH2201 CE14 GCC330	P	OPT	Applied data analysis	Enseignant-e(s): West Robert
15:15-17:00	CM013 CM1100 CM1104 CM1105 CM1106	P	OPT	Production management Groupe 1/2	Enseignant-e(s): Kaboli Amin
15:15-17:00	CM013 CM1100 CM1104 CM1105 CM1106	P	OPT	Production management Groupe 2/2	Enseignant-e(s): Kaboli Amin
16:15-19:00	CM1	P	OPT	Mathematics of data: from theory to computation	Enseignant-e(s): Cevher Volkan

Nuclear Engineering

Time slot		Monday		Tuesday		Wednesday	Thursday				Friday			
8	9	Modelling and opti. of energy sys.	Numerics for fluids, ...	Rad. and Reactor Exp		Rad. and Reactor Exp	Plasma I	Radiation detection			Plasma I	Introduction to medical radiation physics		Experimental methods in physics
9	10													
10	11													
11	12													
12	13							Hydraulic turbomach.	Image Processing I					
13	14	Nuclear fusion and plasma physics		Physics of Nuclear Reactors	Neutron and X-ray Scattering of Quantum materials	Physics of Nuclear Reactors	Intro. to particle accel.					Radiation biology, protection and applications		
14	15													
15	16													
16	17													
17	18													

Obligatory

Optional

Main Program Features - 2

■ 3rd semester

- Industrial internship (3 months minimum) to be started around July => **Start applications not later than January 2027!**
- The **Swiss Nuklearforum** supports us by providing a web platform where internships will be offered: **<https://www.nuklearforum.ch/de/praktikumsplattform>**
- Block courses & mandatory semester project at PSI during weeks 5-14 of the 3rd semester
 - **In May 2027, we will invite you to PSI to explore the possibilities for thesis projects at PSI**

What should the internship look like?

- **The design of the industrial internship is very flexible.** It can be completed in NPPs, industrial companies, but also e.g. in hospitals with radiology departments, or other non-academic institutions.
- **Routine work** (e.g. in dosimetry/radiation protection, recurring maintenance work)
- **Smaller project work** that can be easily completed in 3 months, e.g., minor software development tasks, assistance with core design, design of measurement protocols, etc.
- Duration: **three months, typically from July to September.**
- **We do NOT expect a detailed internship report** (this is up to the host institution), a simple certificate from the employer about the internship done is sufficient.



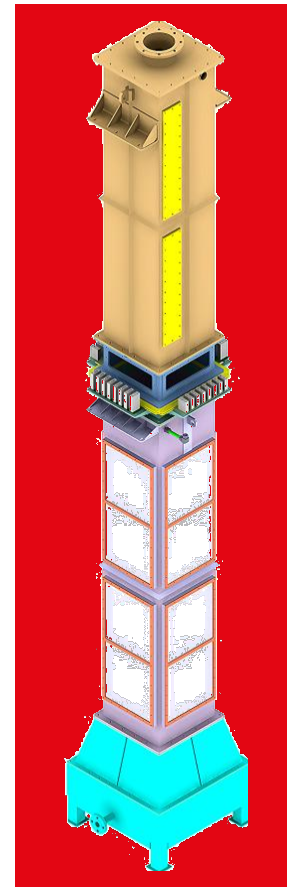
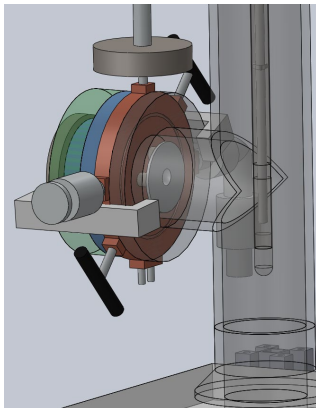
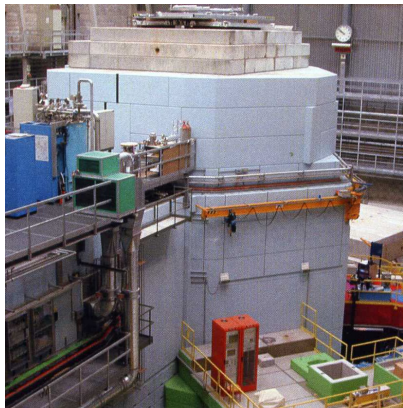
Main Program Features - 3



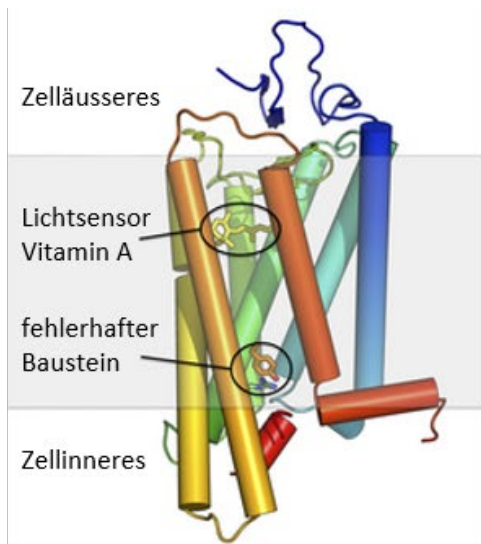
■ 4th semester

- **Master thesis project** recommended at PSI/ETH/EPFL
- **25 weeks of research** (can be selected as a continuation of your semester project theme)
- Conditions: at least 80 ECTS of courses for entering the Master project; completion of project and full 90 ECTS of course work for degree
- **To avoid confusion: master thesis is NOT paid! However, (only) PSI has committed to a monthly reimbursement of expenses of 400 CHF/month**

PSI – Powerful scientific infrastructure

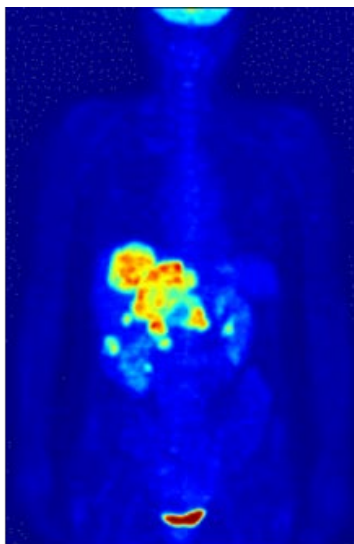


Proton Therapy and Radiopharmacy at PSI



Structure of Proteins

For the targeted development of new drugs



Radiopharmaceuticals

for the diagnosis and therapy of cancer



Proton therapy

- Treatment of tumors
- Little damage to surrounding tissues

SPC: The Swiss Plasma Center at EPFL and its mission



PSI National laboratory with international facilities in an academic environment

Aim: make ITER a success

develop the science and technology basis of DEMO

prepare the ITER/DEMO generations of scientists and engineers

exploit plasma and fusion spinoffs for industry and society

Size: 145 staff, 36 PhDs, 32MCHF/y

Lausanne



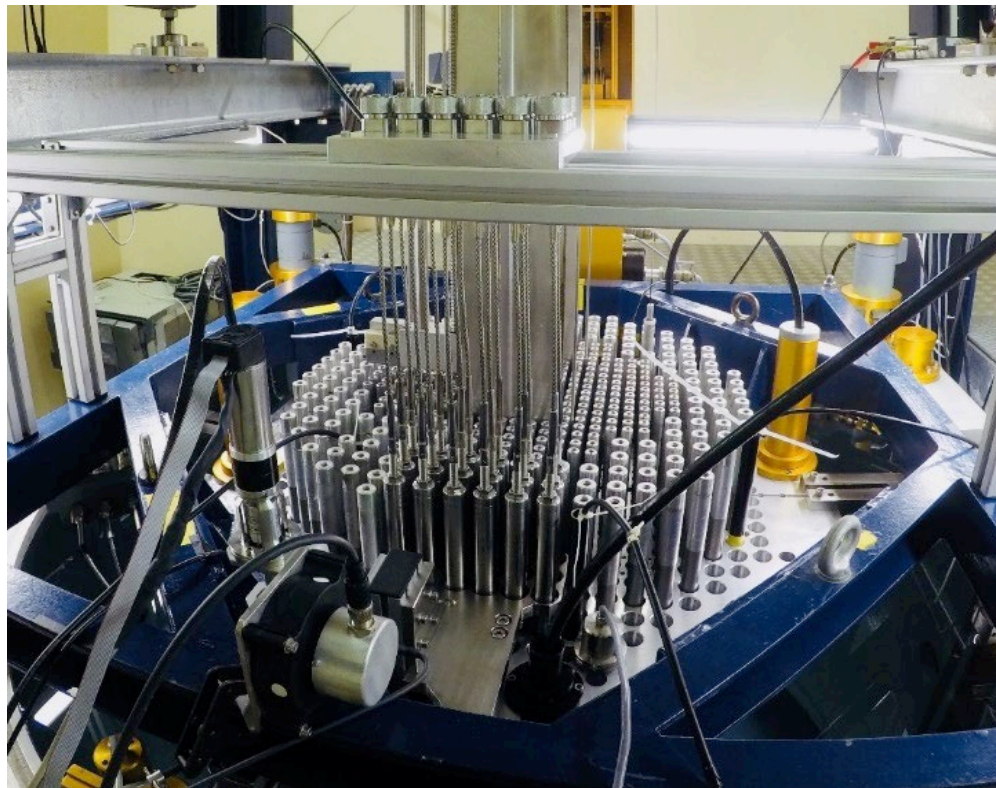
Villigen



PAUL SCHERRER INSTITUT

PSI

CROCUS reactor – exciting experimental training



Teaching:

- Critical experiment
- Reactor kinetics
- Neutron flux profile measurements
- Activation experiments

Research:

- Neutron noise theory
- Neutron detectors, measurements and applications
- Generation and validation of nuclear data for reactor technology



For questions regarding the nuclear master program, administration, etc.

Valerie.schaererbusinger@epfl.ch
Andreas.Pautz@epfl.ch

At LRS:

Ludovic.Jantzen@epfl.ch (Code development)
Oskari.Pakari@epfl.ch (Chef des Installations)
Mathieu.Hursin@epfl.ch (Deputy Head LRS)
Vincent.Lamirand@epfl.ch (Experimental programs)

At ETH Zurich, an introduction meeting will be held at the beginning of the second semester. For the time being, contact maneraa@ethz.ch in case of questions.

*More information on the Nuclear Master Program:
<http://master.epfl.ch/nuclearengineering>
or <http://www.master-nuclear.ethz.ch/>*

EPFL is a community of around 20,000 people

- Who enrich our community every day with their skills, identities, and differences
- By joining EPFL, we commit to upholding values based on **respect and well-being**
- To live up to these values EPFL has created the **Trust and Support Network**
- Easy access through **Trust Point**



Towards a culture of **respect** and **well-being**



@ EPFL

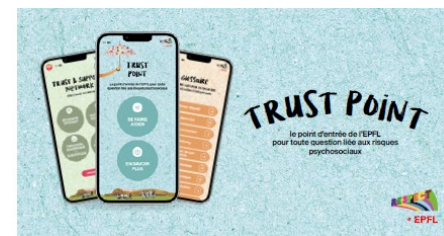
- Health days



- Get **trained** to know how to **act** and **react**
Moodle Promoting respect >>>>>>>>
- Speak up** and **seek support**
Trust & Support Network (TSN) >>>>>>>>
- Internal entity to file formal complaints
Respect Compliance Office (RCO)

*Everyone has a role
to play!*

*We are all
concerned!*





Merci

**Andreas
Pautz**

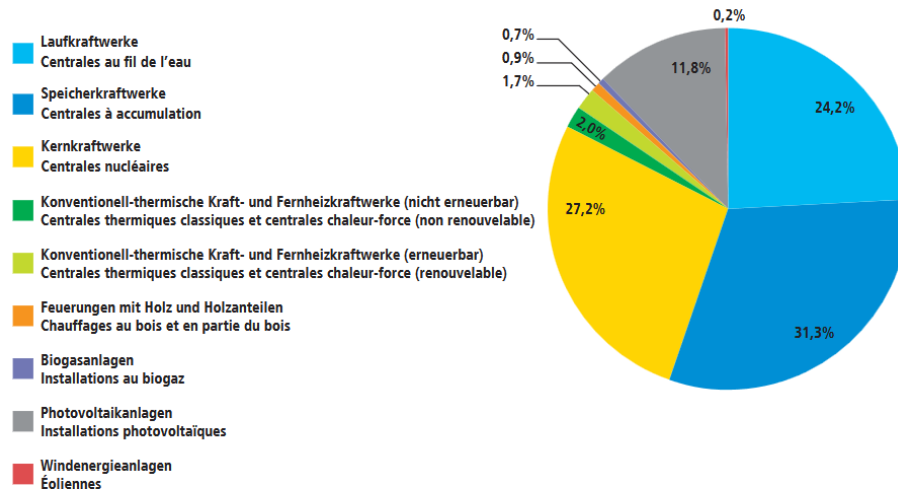


Introduction to the Nuclear Energy Industry in Switzerland

Fabienne Chawla
04.09.2026

Swiss electricity production mix

Fig. 1 Stromproduktion 2025 nach Kraftwerkategorien
Production d'électricité en 2025 par catégories de centrales



 BFE, Schweizerische Elektrizitätst Statistik 2025 (Fig. 1)
 OFEN, Statistique suisse de l'électricité 2025 (fig. 1)

Not only NPP...



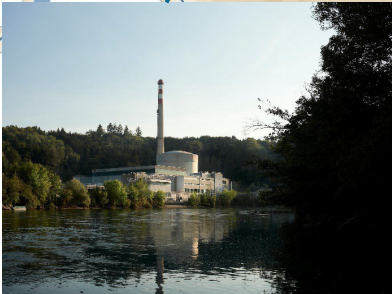
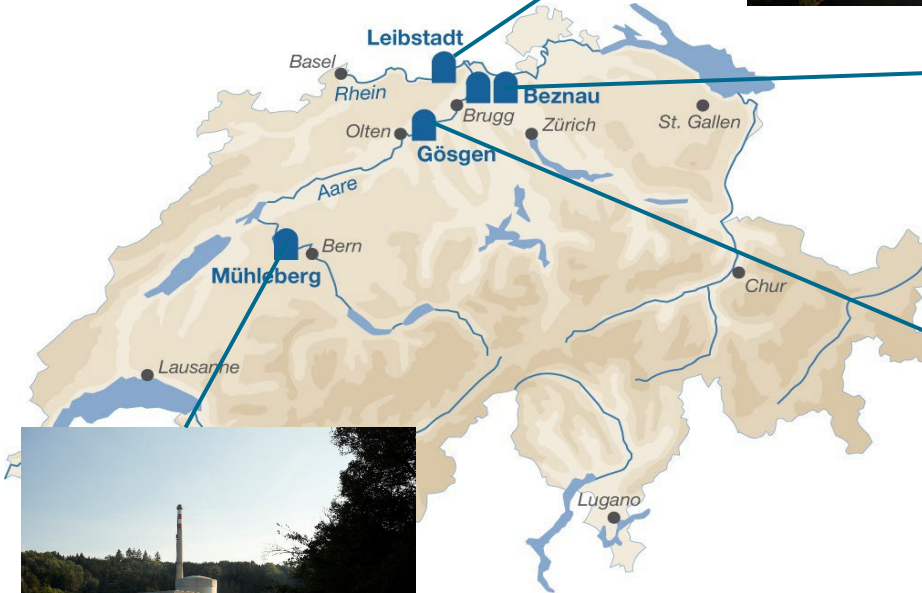
NPP Leibstadt
BWR, 1220 MWe
1984



NPP Beznau I & II
PWR, 2x 365 MWe
1969 / 1971

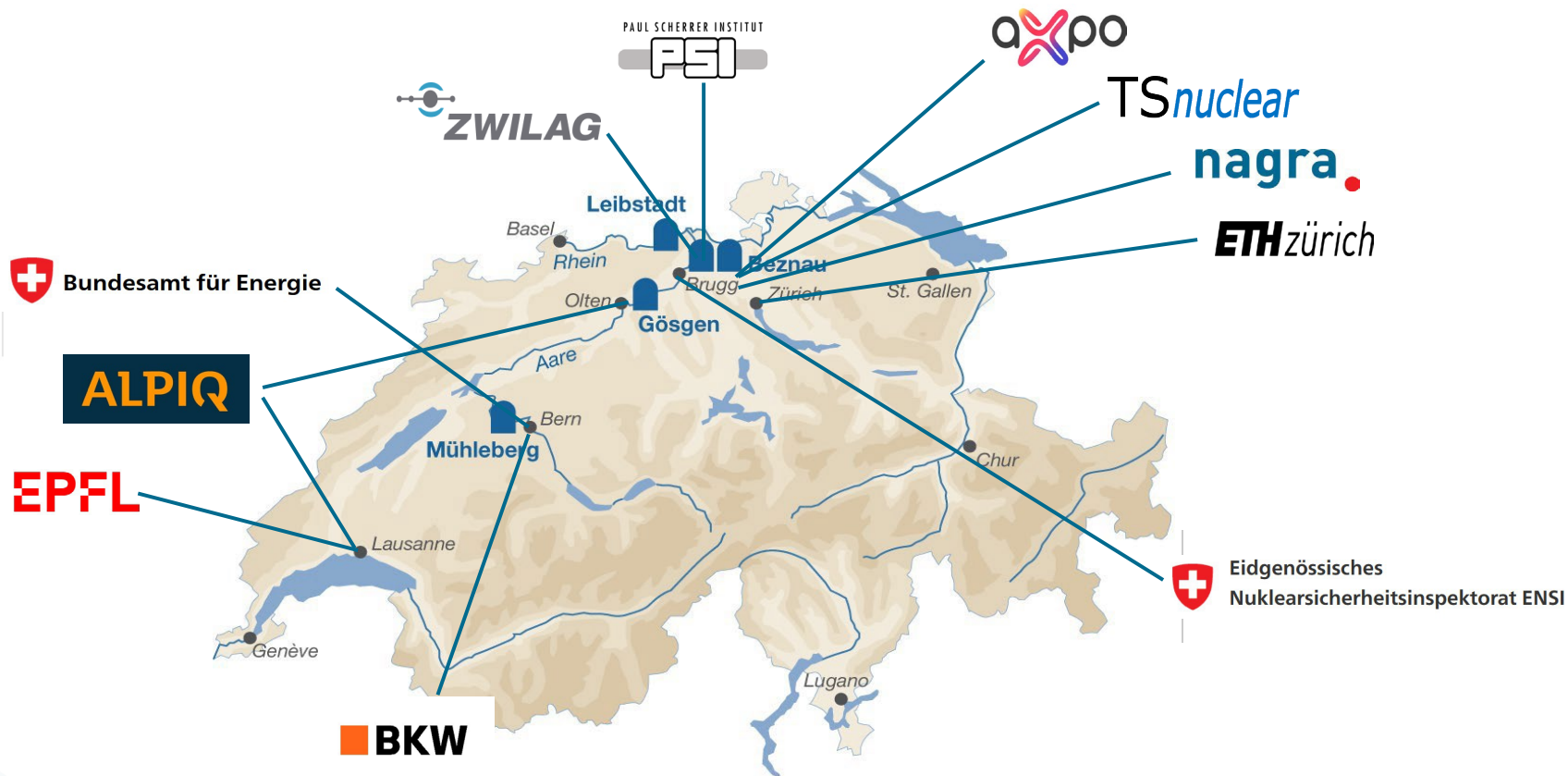


NPP Gösgen
PWR, 1010 MWe
1979

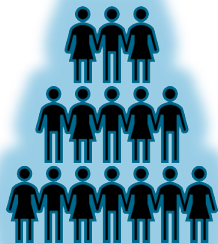


NPP Mühleberg
BWR, 373 MWe
1971 – 2019

...but a whole Microcosm...



...and behind are the people.



2200

Employees in the
nuclear sector



100

physicists and
nuclear engineers



350-450

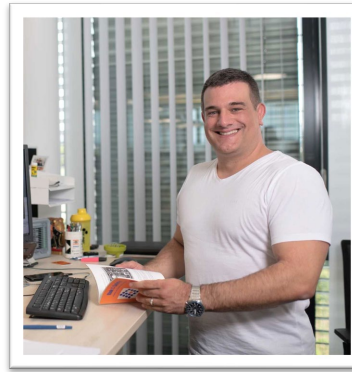
need of new employees
in the next 5 years





Operation

Shift Supervisor at KKG
MSc Nuclear Engineering ETHZ



Senior Scientist at KKL
PhD Nuclear Safety

Chemistry



Deputy Head Chemistry
Department at KKB
PhD Radioanalytical Chemistry

Nuclear Fuel



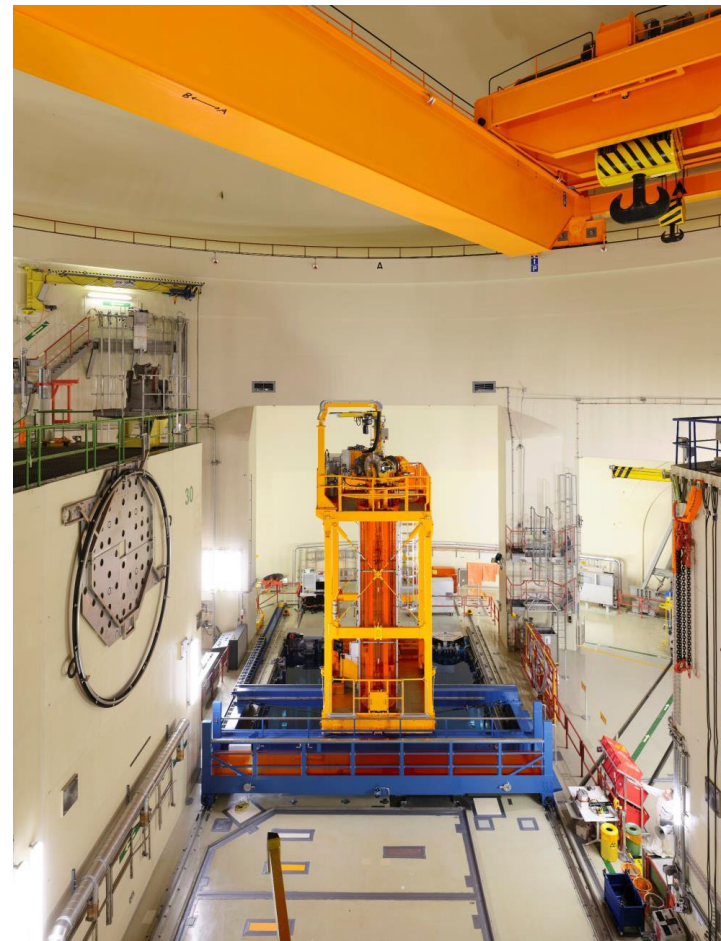
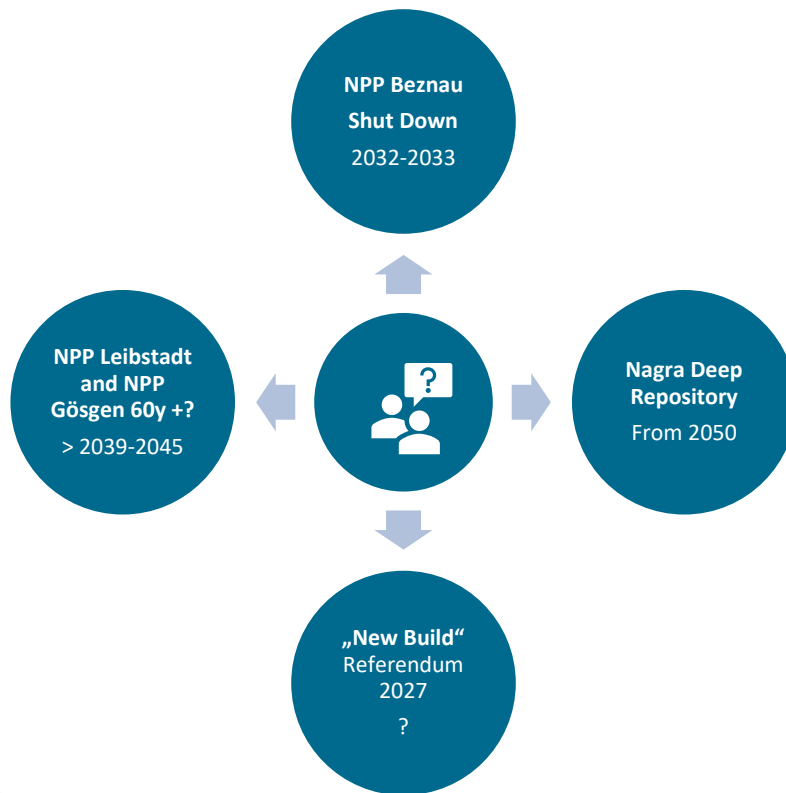
Head Nuclear Fuel at KKG
Reactor Safety and Technology, RWTH Aachen

Safety

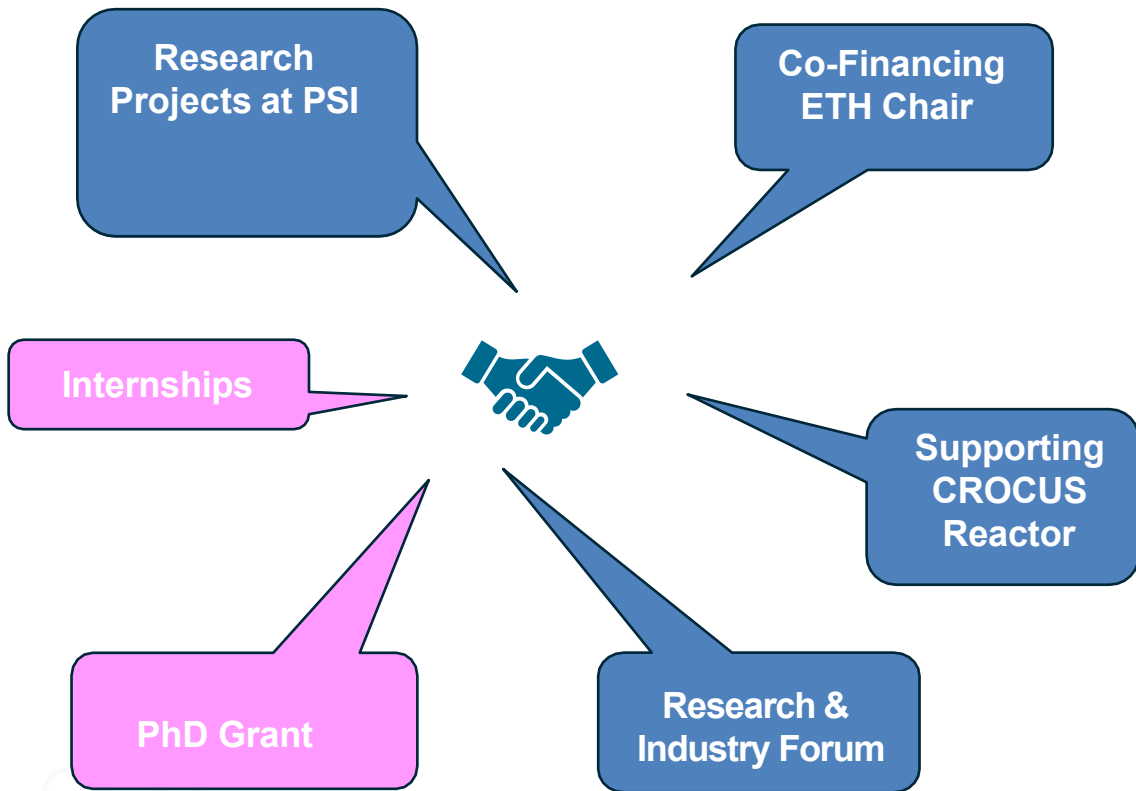


Department Head Risk Management at KKB
MSc Nuclear Engineering ETHZ

Future of Nuclear Energy in Switzerland



Supporting the next generation



How to get in contact with the industry

- **Meet us at:**

- ETH AMIV Kontakt: <https://kontakt.amiv.ethz.ch/de>; 29.09.2026
- EPFL Forum: <https://www.forum-epfl.ch/>; 06.10.2026

- **Visit us at:**

- <https://www.kkl.ch/besucherangebote/infozentrum>
- <https://www.kkg.ch/de/werksbesuch/besuchen-kernkraftwerk.html>
- <https://www.zwilag.ch/de/fuehrungen-content---1--1076.html>

- **Jobs and Internship in the NPP**

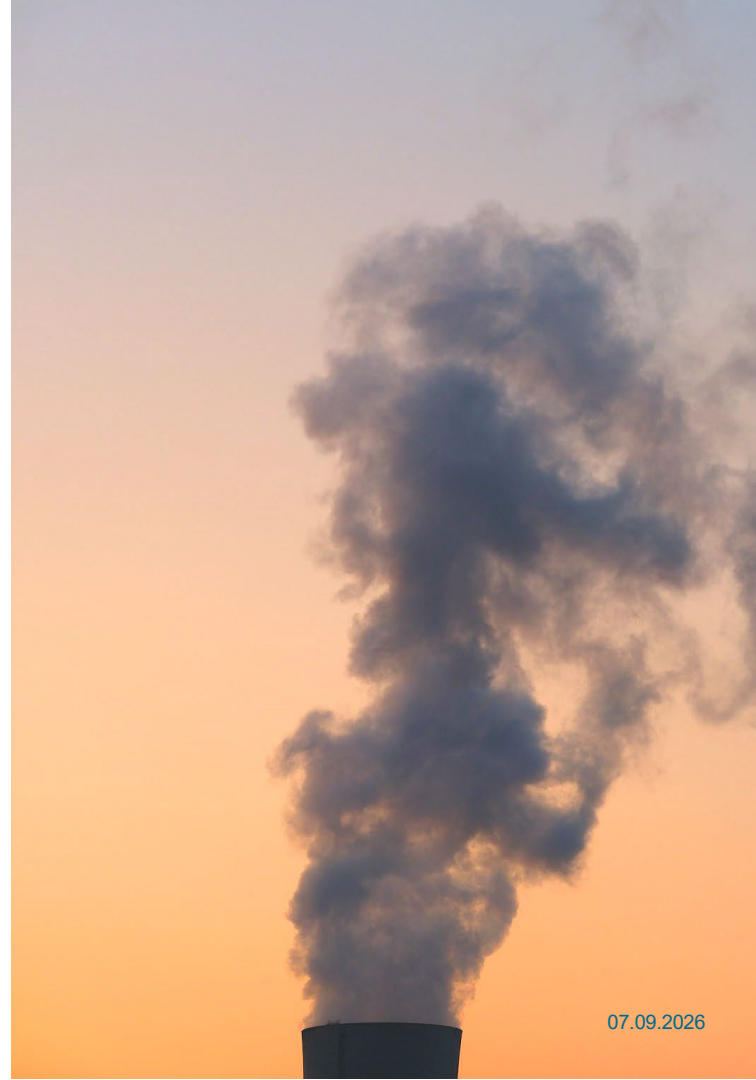
- <https://swissnuclear.ch/jobs/>

- **Research projects and PhD Grant at PSI**

Contact: fabienne.chawla@swissnuclear.ch

To go further

- **General information on nuclear energy:**
 - <https://www.kernenergie.ch/>
- **Networking (Swiss nuclear society)**
 - <https://www.kernfachleute.ch/>
 - Young generation Group/ Women in Nuclear Group
- **Information plattform: Nuklearforum**
 - <https://www.nuklearforum.ch/de>
- **Association of the Swiss nuclear exploitant**
 - <https://www.swissnuclear.ch>





**Thank you for your
attention**

Welcome to EPFL!

Friday, September 4th 2026

AGEPoly



**Association Générale des Étudiant'e's de
l'EPFL**

What links you to AGEPoly

Your Camipro

You are now an AGEPoly member - welcome!



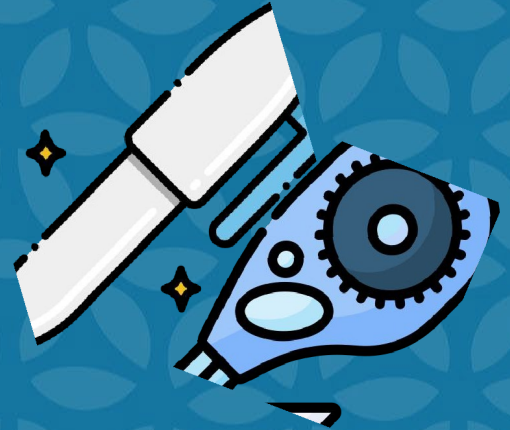
What links you to AGEPoly

Your Camipro

You are now an AGEPoly member - welcome!

Our shop

You can get free items like pens, Tipp-Ex, menstrual hygiene products, condoms and more!



What links you to AGEPoly

Your Camipro

You are now an AGEPoly member - welcome!

Our shop

You can get free items like pens, Tipp-Ex, menstrual hygiene products, condoms and more!

Wonderful people

Your coaches & 2 class representatives are here for you







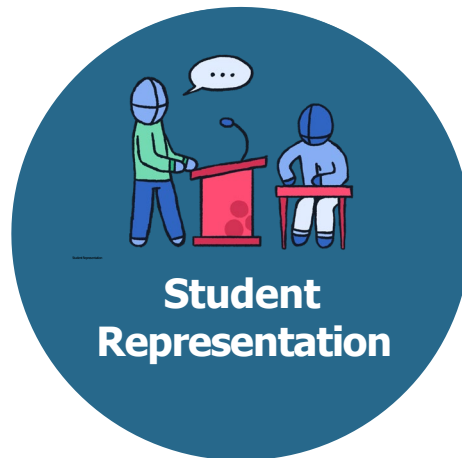
**Services &
Prevention**

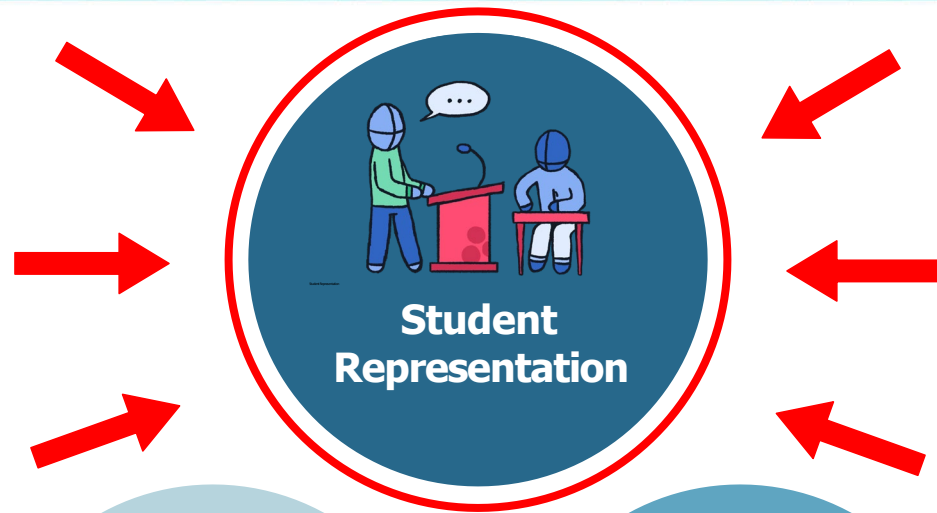


**Services &
Prevention**



**Animation &
Sports**



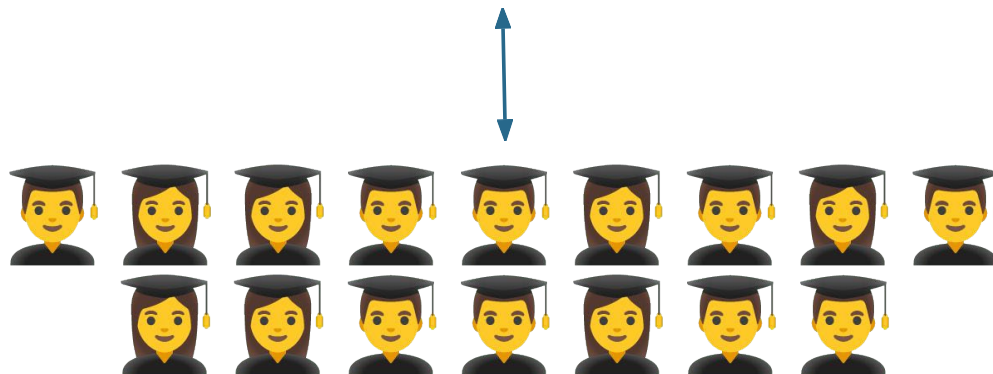


What is a class representative?



What is a class representative?

  2 class representatives



What is a class representative?



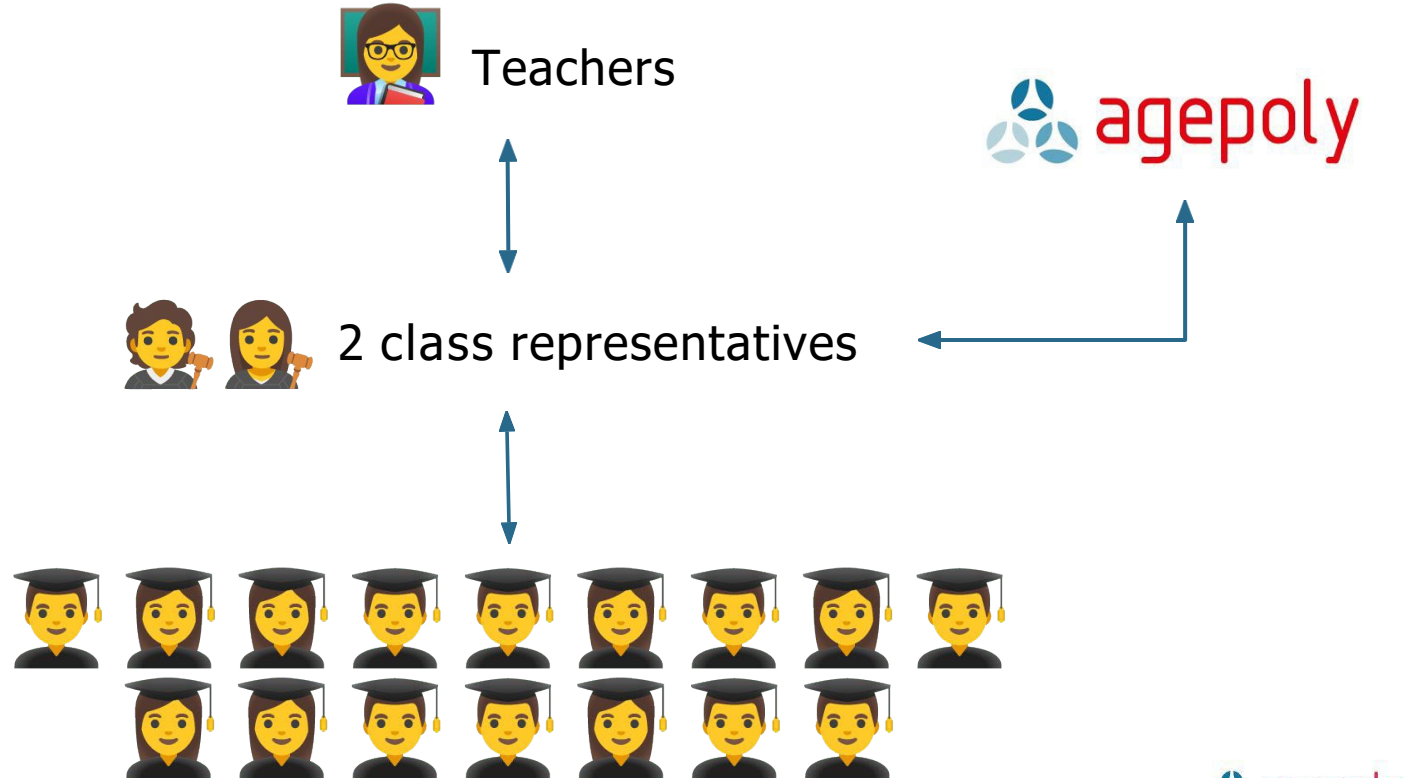
Teachers



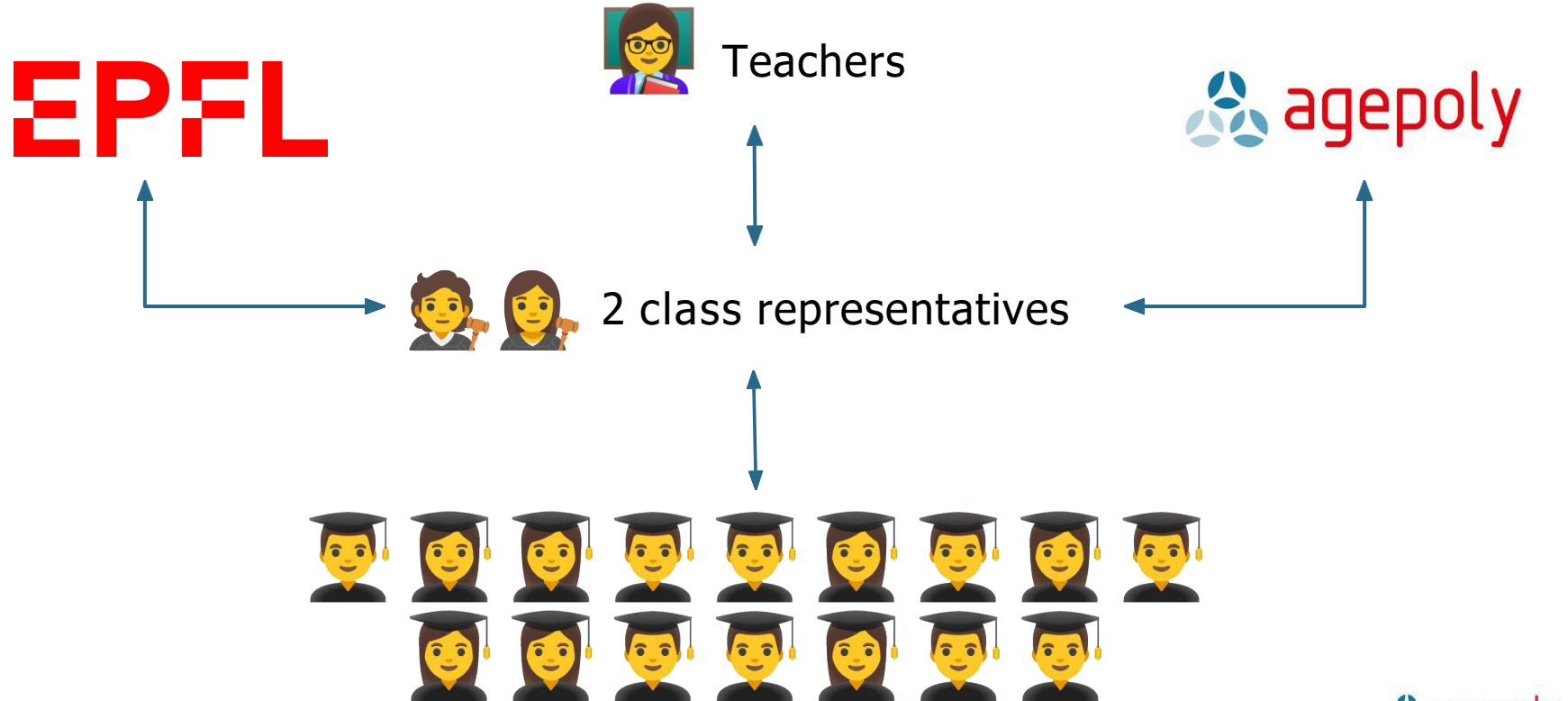
2 class representatives



What is a class representative?



What is a class representative?



**Why do we need
class
representatives?**

Big classes!

**Why do we need
class
representatives?**

Big classes!



**The teachers want your
opinion on their lectures**

**Why do we need
class
representatives?**

Big classes!



**The teachers want your
opinion on their lectures**



Little problems with courses

**Why do we need
class
representatives?**

Big classes!



**The teachers want your
opinion on their lectures**



Little problems with courses



**Represent and defend the
students' rights and interests**

**Why do we need
class
representatives?**

What do class representatives do?



What do class representatives do?

DISCUSS

What do class representatives do?

LISTEN



DISCUSS

What do class representatives do?

LISTEN



**ALLOW YOUR CLASS' VOICE
TO BE HEARD**



DISCUSS

What do class representatives do?

LISTEN



**ALLOW YOUR CLASS' VOICE
TO BE HEARD**



DISCUSS



RELAY INFORMATION

What do class representatives do?

LISTEN



**ALLOW YOUR CLASS' VOICE
TO BE HEARD**



DISCUSS

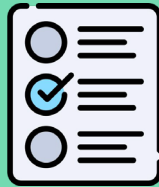


RELAY INFORMATION



**PROMOTE EPFL'S VALUES
OF RESPECT**

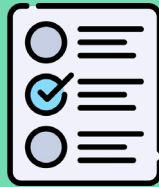
More precisely...



More precisely...



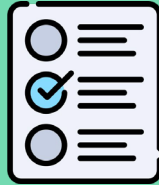
**Representation
training**



More precisely...



**Representation
training**



Meetings with EPFL board and your section

To defend the students' interests

Meetings with other students

To figure out solutions and common problems



More precisely...



**Representation
training**



Running polls
To gather your class' opinion



Meetings with EPFL board and your section

To defend the students' interests

Meetings with other students

To figure out solutions and common problems



More precisely...



**Representation
training**



Running polls
To gather your class' opinion

**Meet wonderful
people!**



Class representatives from other classes and sections, teachers with passion for teaching and research



Meetings with EPFL board and your section
To defend the students' interests

Meetings with other students
To figure out solutions and common problems



More precisely...



**Representation
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Meetings with EPFL board and your section
To defend the students' interests

Meetings with other students
To figure out solutions and common problems

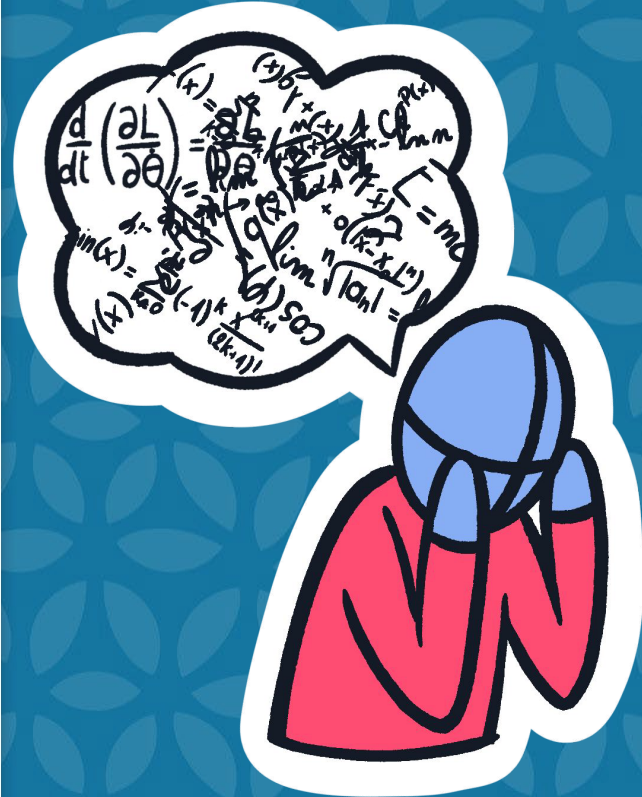


**Super cool
projects!**

So...

→ **A question?**

→ An issue in a class?

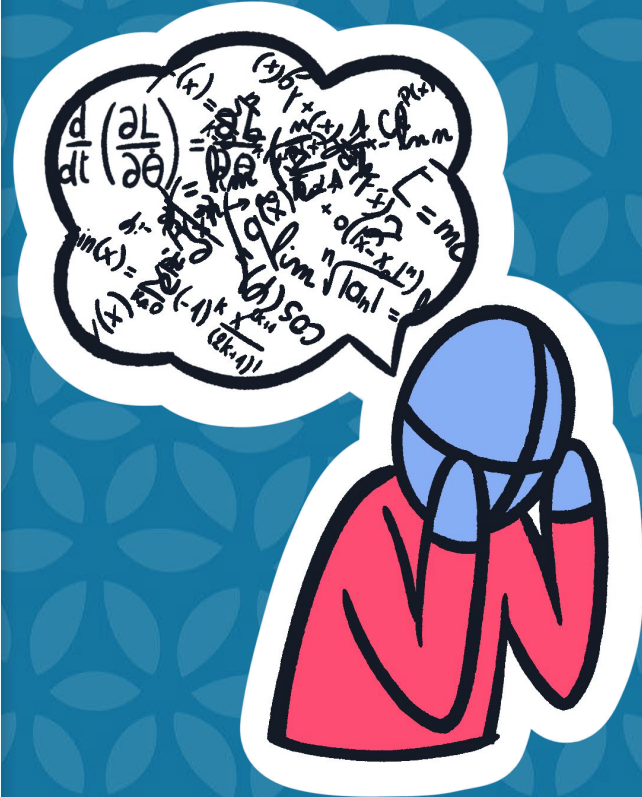


So...

- **A question?**
- **An issue in a class?**



Contact your representatives!



How to become a student representative?



APPLY

Bachelors: sign in using **Google Forms**
Masters: sign in using **IS□Academia**

until 11th September



VOTE

Vote for **2 class representatives** on **IS□Academia**

12 □ 17 September



RESULTS

18 September

To know more about representation

Join our **Telegram Representation Channel** to:

- Stay informed about what happens in terms of representation at EPFL
- Give your opinion on important issues

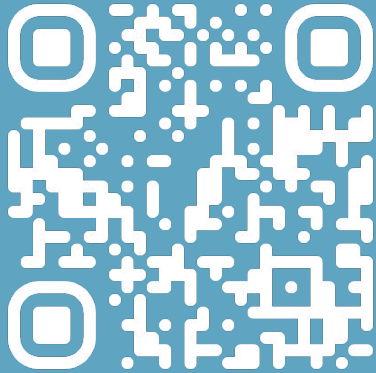


https://go.agepoly.ch/telegram_ageprepres

Ask us all of your questions!

representation@agepoly.ch
contact@agepoly.ch

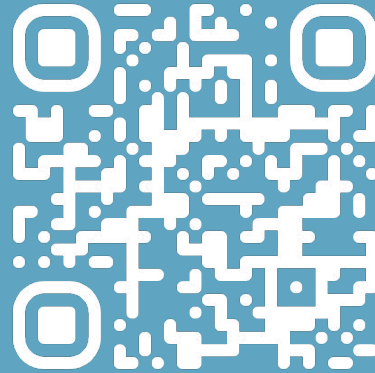
Raphaël Faltin



□Raphael_Faltin



Kenza Hessissen



@kenza_hess

**AGEPoly wishes you
an excellent academic
year!**

Friday, September 4th 2026

Swiss Nuclear Society Young Generation



Schweizerische Gesellschaft
der Kernfachleute
Swiss Nuclear Society
Young Generation

What is the SNS/SGK and YG?

- Professional society of nuclear workers in Switzerland
- Part of the swiss nuclear forum which
 - Communicates publicly about nuclear power in Switzerland
- Young Generation organizes
 - Social Events
 - Conferences
 - Exchange with other countries
 - For everyone under 35



Board Game Evening



Join Us

Join the SNS

Students 25 CHF/year

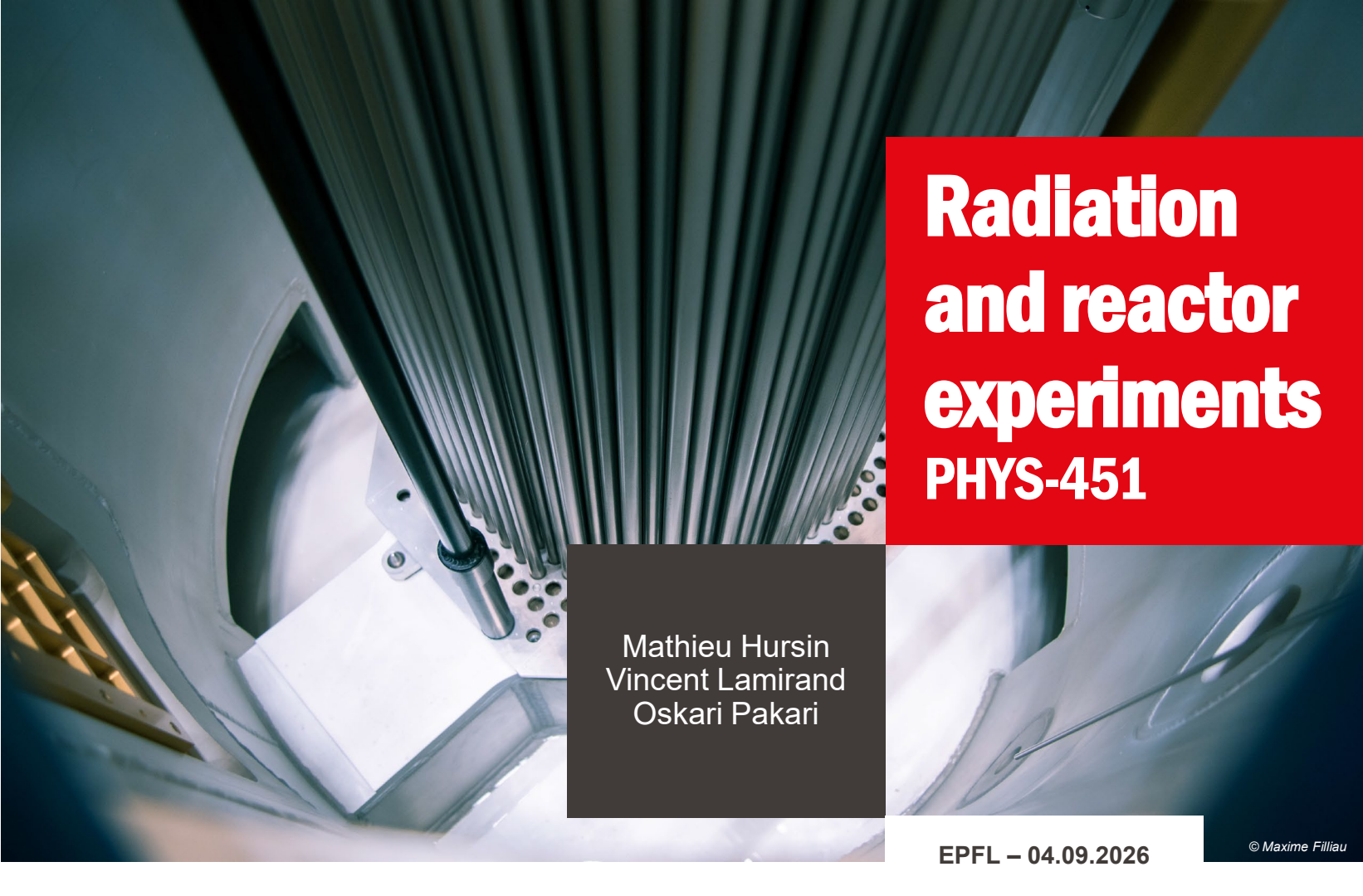


Membership
Request



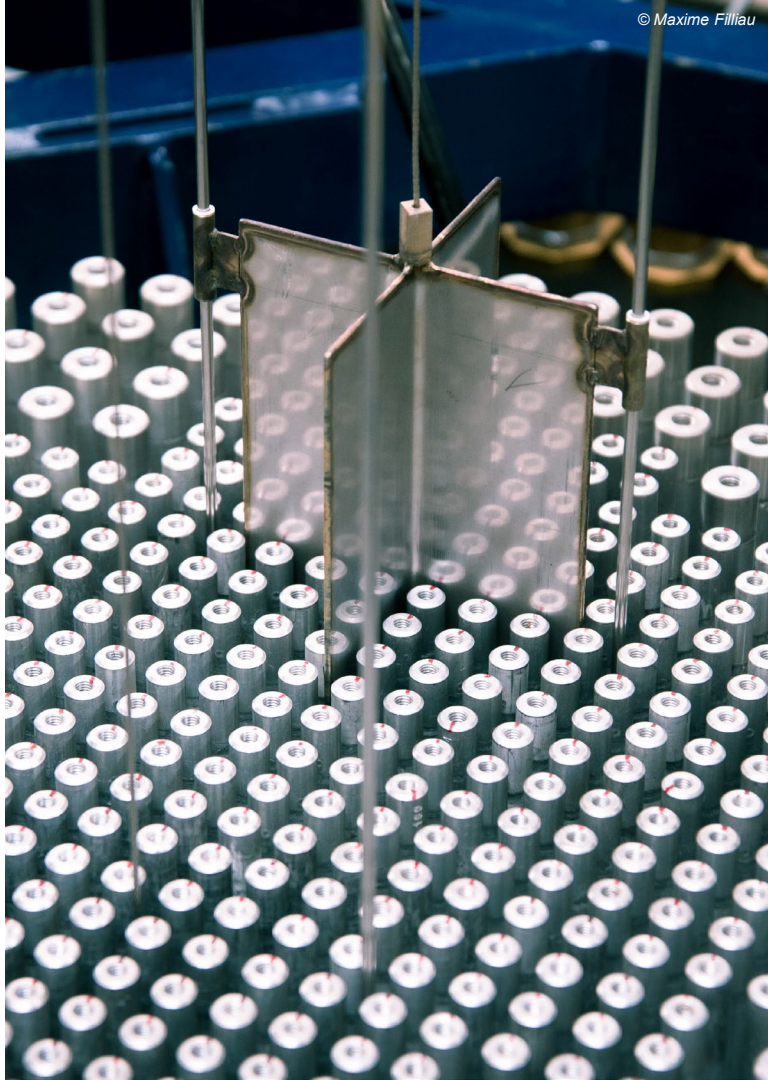
Young Generation
Whatsapp Chat



The background of the slide is a photograph of a nuclear reactor core, showing a dense bundle of fuel rods and surrounding structural components.

Radiation and reactor experiments PHYS-451

Mathieu Hursin
Vincent Lamirand
Oskari Pakari



Content

- Organization
- List of experiments
- Experiment execution
- Rules of the controlled area
- Schedule
- Course evaluation
- A few advices for your reports

**Tuesdays
or
Wednesdays
8:15-12:00**

**Each week,
one group,
one experiment**

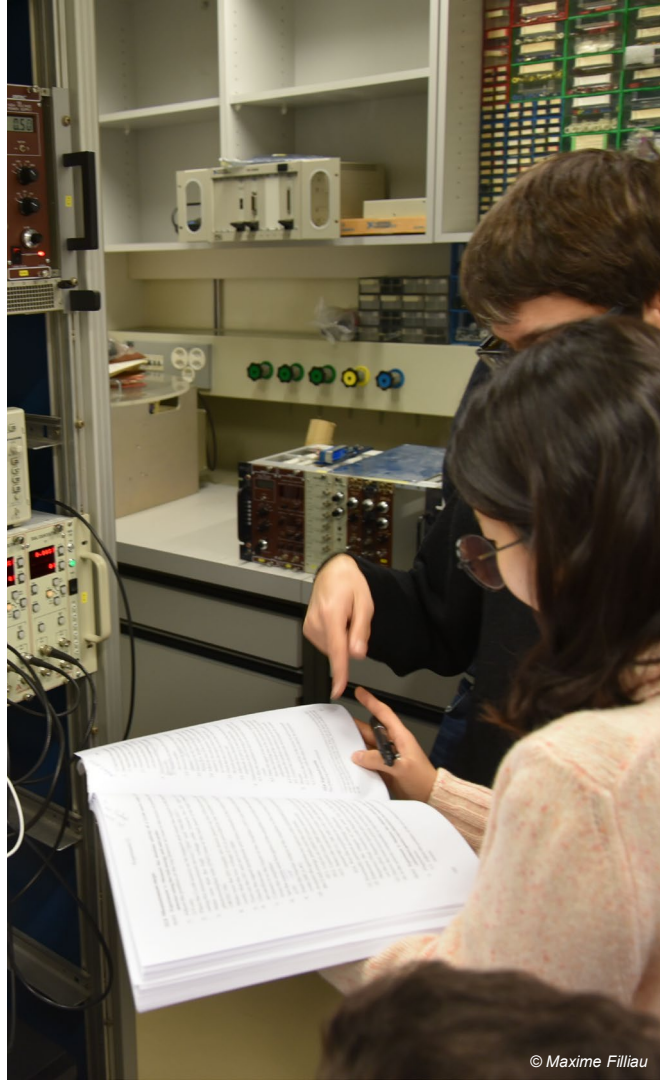
7 groups of 4

**Oral exam
on last week**

13 experiments

**Groups merged
on CROCUS**

	1 Detection of α particles		2 Detection of β particles		3 Detection of γ radiation	
4 γ attenuation		5 Detection of neutrons		6 Scintillation detectors		7 Monte Carlo simulation
	8 Approach-to-critical		9 Neutron noise		10 Neutron flux & reactor power	
11 Stable periods		12 ^{60}Co coincidence		13 Radiation protection		EXAM



Experiment execution

Before starting

- At home: Reading theory and description
- Assistant introducing the experiment

During the experiment

- After its introduction, starting the experiment
- Collecting data, and performing analysis
- Discussing the results with the assistant

After finishing

- Cleaning up the working area
- At home: Writing the report

Controlled area

- Access requires CAMIPRO badge
- One dosimeter per group at the entrance
- Dose to be recorded in logbook at the end; course responsible to be informed if $> 1\mu\text{Sv}$
- Jackets and bags in the locker room
- No eating or drinking inside
- Inform course responsible for temporary exit

Radioprotection rules are available on Moodle



Preliminary schedule

Reactor experiments

Groups	08-09.09	15-16.09	22-23.09	29-30.09	06-07.10	13-14.10	27-28.10
A/A'	1	2	3	4	5	8	6
B/B'	2	3	4	5	1	8	13
C/C'	3	4	5	1	2	6	8
D'	4	5	1	2	3	13	8

Group	03-04.11	10-11.11	17-18.11	24-25.11	01-02.12	08-09.12	15-16.12
A/A'	10	13	11	7	9	12	EXAM
B/B'	10	6	11	12	9	7	
C/C'	13	10	7	11	12	9	
D'	6	10	12	11	7	9	

- *Criterion I: Score obtained for written report*
 - Written reports (**one per group**) to be uploaded, latest by Sunday/Monday evening (i.e., 5 days after the lab took place)*
 - Will be returned graded the next day before the lab session on Wednesdays
 - Final score for Criterion I: average value of all such written-report grades (minus the worst one)
 - * *Penalty on the report grade (-1 point) if not made available on time*
- *Criterion II: Oral examination*
 - Each student to be examined orally on **15-16.12.2026**
 - 20-minute question period, to evaluate general comprehension of important practical aspects of conducting nuclear reactor measurements.

Final grade for course: equally weighted, mean score obtained

Uploading of reports via **Moodle** by Sunday (Tu. groups) or Monday (We) 23:59:59

- Format for file name: GRX-EY-day-month-year.pdf (X: group no.; Y: experiment no.)
- Concise: <10 pages
- Formatting at scientific publication level
 - Proof-read the report before submitting

Sample 2 proved to be a very weak beta minus emitter (it is probability a material artificially activated some time ago, exceeding its half life).

feeds another Counter input itself. The output of the counter were used to calculate the activity according to equation 2. When the two signals coming from the two amplifiers are recorded with delay 0 (supposed the two gammas are basically emitted at the same time), in the coincidences the true coincidences are measured. If the delay is increased, the true coincidences are lost and only the random delay is obtained. The model approximates only true coincidences and neglects the random ones.

- Figure, Table captions exist and are correctly referenced in the text

- Always attach the raw measurements to the report when submitting on moodle
 - Table in Appendix
 - .tka file
- Measurement values reported without associated uncertainty are useless
 - An attempt to estimate the absolute or relative (specify!) uncertainty should always be made
 - One or two significant decimal digits are adequate for uncertainty (2 when the leading digit is 1 or 2)
- Pay attention to the number of significant digits
 - Related to the uncertainty of the measurement!

$$y = 1.024 \text{ V}, \quad u(y) = 0.028 \text{ V}$$

$$y = 1.02 \text{ V}, \quad u(y) = 0.03 \text{ V}$$

are both OK ✓

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Water Level (mm)	cps (s^{-1})	σ_{cps}
910	21.23	0.188
920	27.11	0.233

?

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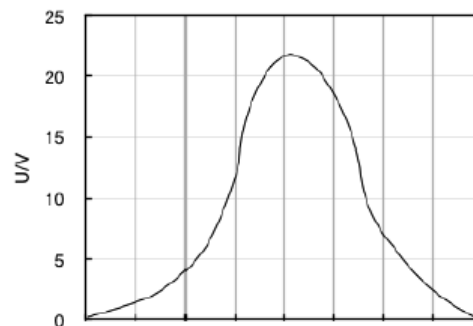
?

Water Level (mm)	cps (s^{-1})	σ_{cps}
910	21.23	0.19
920	27.1	0.2

✓

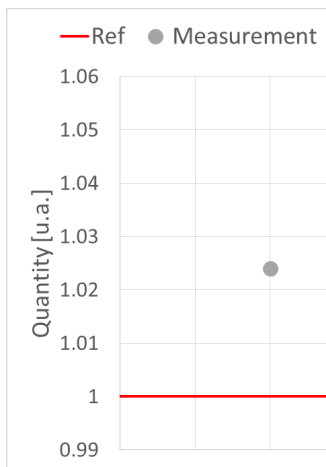
Too many digits both
in the mean and unc. values

- *Axis labels!*
- *Add captions*

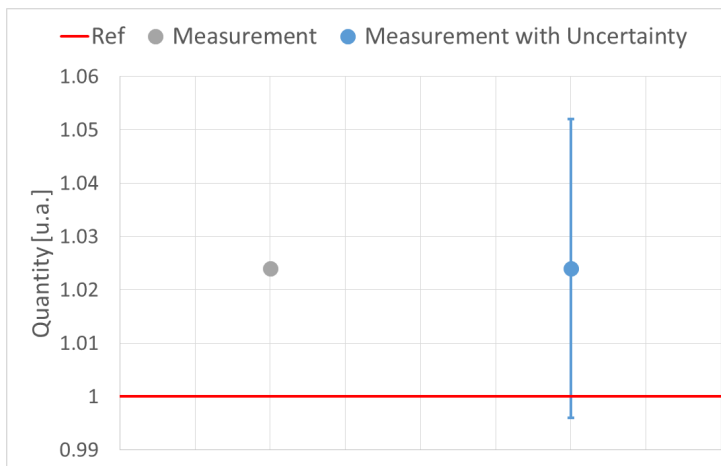


(b) *Amplifier output of detector 1.*

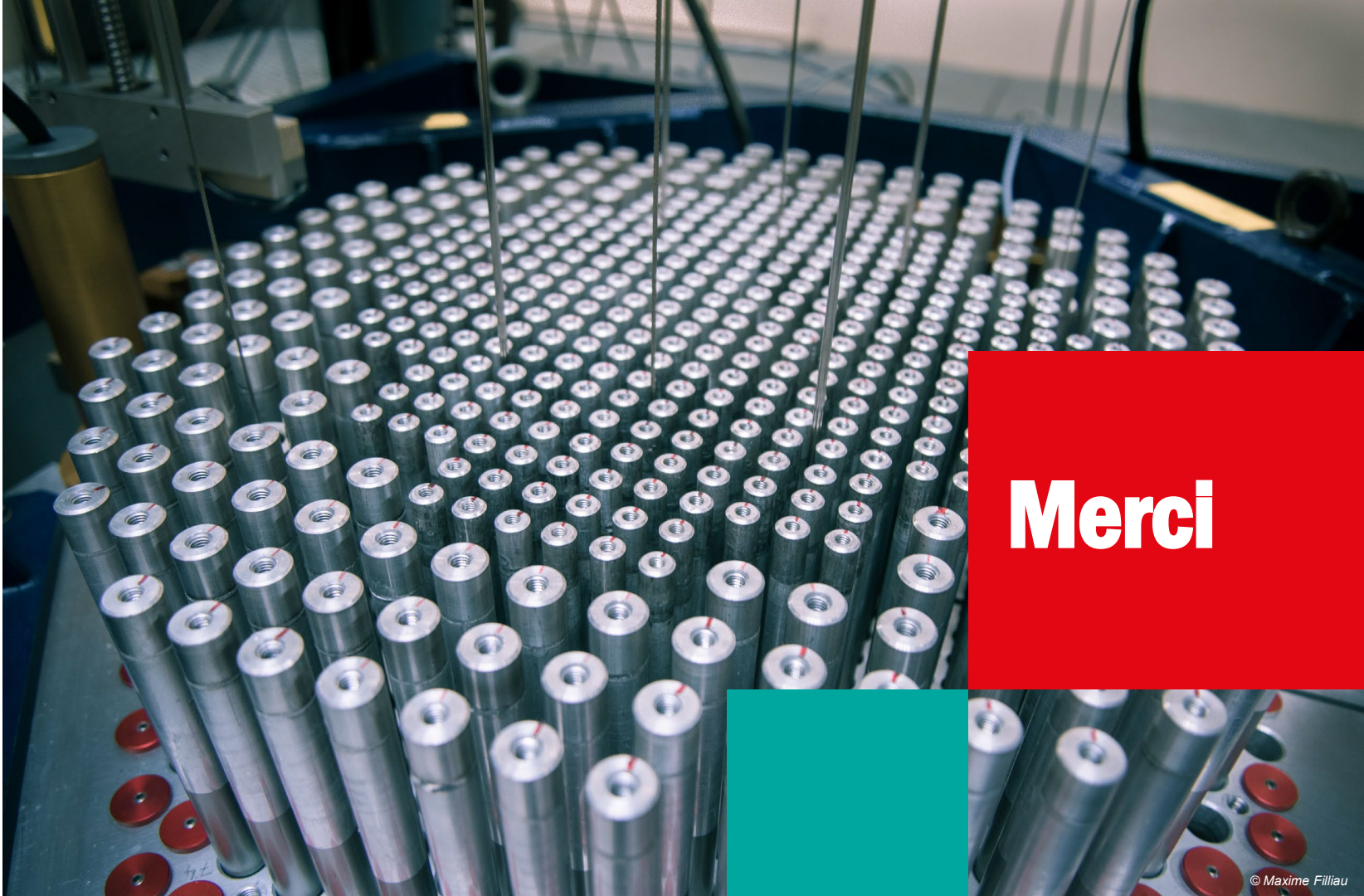
- Always conclude on a reported measurement
 - Compare to reference values



- Always conclude on a reported measurement
 - Compare to reference values



- Good or bad agreement is decided by uncertainty!



Merci