

Herbstschule HEP



formerly Maria Laach

Herbstschule 2024 Bad Honnef



Herbstschule HEP



formerly Maria Laach

GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung

55. Herbstschule of High-Energy Physics

(formerly Herbstschule Maria Laach)

September 03 – 13, 2024

The school is primarily aimed at PhD students of theoretical and experimental high energy particle physics. The venue is the physics centre (Physikzentrum) in Bad Honnef. Participation in the event is by invitation only. Students who are interested in attending may reach out to the expert closest to their geographical location, as listed here:

<https://herbstschule-hep.tp.nt.uni-siegen.de/institutes/>.

Main lectures:

Standard Model precision physics	Kirill Melnikov	KIT
Higgs and electroweak physics at the LHC	Marumi Kado	MPI
QCD and jets at the LHC	Peter Uwer	HU Berlin
Physics beyond the Standard Model	Matthew McCullough	CERN
Flavour Physics	Marco Gersabeck	Uni Manchester
Dark Matter	Felix Kahlhöfer	KIT
Quantum Computing	Lena Funcke	Uni Bonn

Organisation:

Prof. Dr. M. Klute	Prof. Dr. S. Dittmaier	Prof. Dr. A. Lenz
Karlsruhe Inst. of Tech.	Universität Freiburg	Universität Siegen

Head organiser for 2024:

Prof. Dr. M. Klute	Tel.: +49 721 608 - 43521 (Sekretariat)
Karlsruhe Institute of Technology	E-mail: mLaach@physik.uni-siegen.de
Wolfgang-Gaede-Str. 1	Twitter: twitter.com/AthanasiusReal
76131 Karlsruhe	

More information available at

<https://herbstschule-hep.tp.nt.uni-siegen.de/>



Herbstschule 2024 in Bad Honnef: Time table

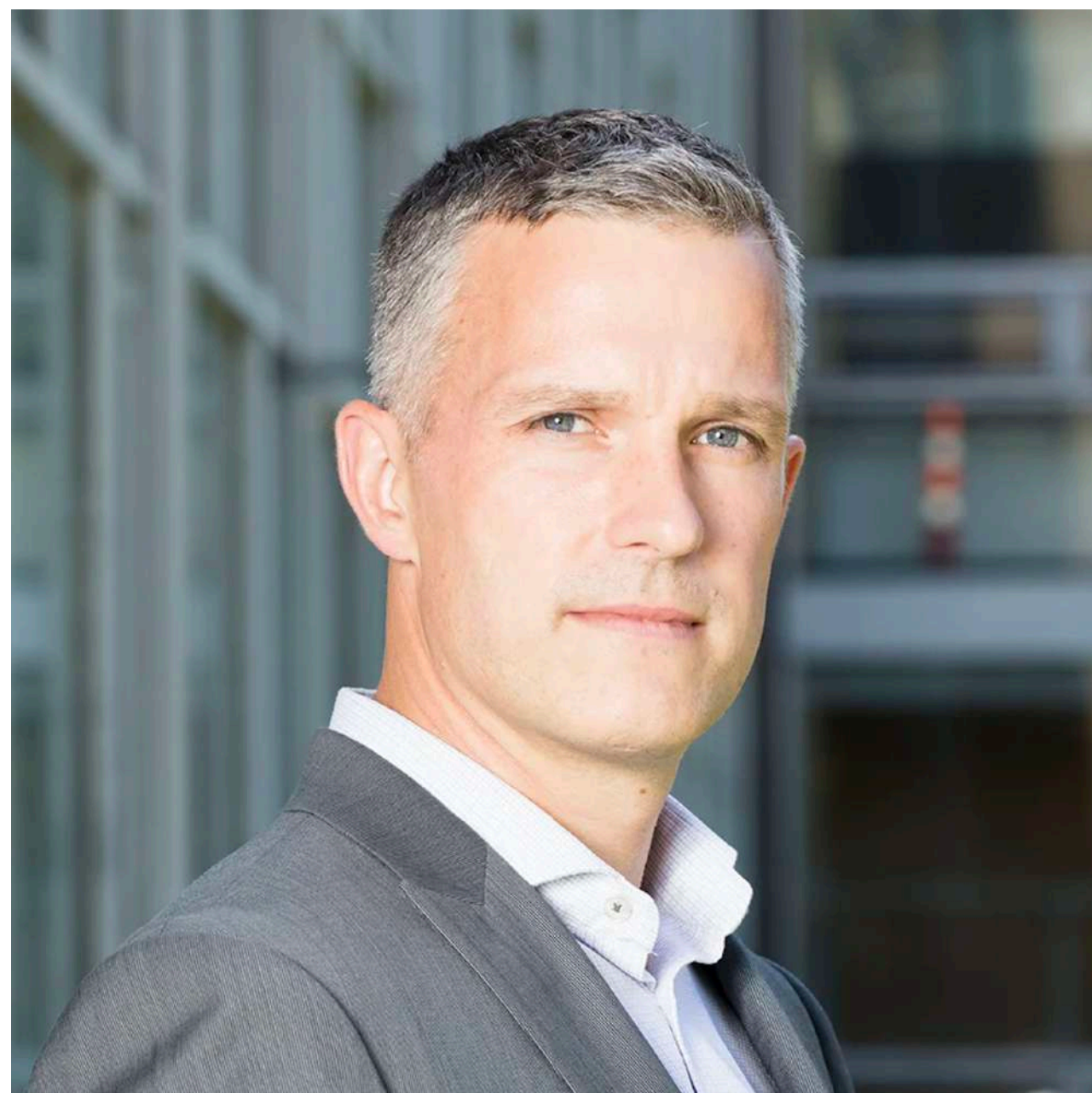
Timetable on INDICO Page: <https://indico.physik.uni-siegen.de/event/327/overview>

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
		3/9	4/9	5/9	6/9	7/9	8/9
7h30	Breakfast						
09h00-09h55			SM - Melnikov	LHC - Kado	Quantum - Funcke	LHC - Kado	
10h10-11h05			Quantum - Funcke	SM - Melnikov	LHC - Kado	SM - Melnikov	
11h20-12h15			LHC - Kado	Quantum - Funcke	SM - Melnikov	Excerise	
12h30	Lunch						
14h30-16h00		Arrival	Excerise	Excerise	Excerise		
16h30-18h00			Excerise	Groups	Groups	Excursion	Hike
18h30	Dinner						
20h00		Welcome by Alexander		Anne Lauscher			

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	9/9	10/9	11/9	12/9	13/9		
7h30	Breakfast						
09h00-09h55	DM - Kahlhöfer	QCD - Uwer	Flavour - Gersabeck	BSM - McCollough	QCD - Uwer		
10h10-11h05	BSM - McCollough	BSM - McCollough	BSM - McCollough	QCD - Uwer	Flavour - Gersabeck		
11h20-12h15	QCD - Uwer	DM - Kahlhöfer	DM - Kahlhöfer	Flavour - Gersabeck	Closeout		
12h30	Lunch						
14h30-16h00	Excerise		Excerise	Groups	Departure		
16h30-18h00	Groups	Free	Groups	Groups			
18h30	Dinner						
20h00	Hendrik Hildebra			Thomas Mannel			

Internet access was handed out at registration for your room

Herbstschule 2024 in Bad Honnef: Organisers



Markus Klute
Experimental Particle Physics
KIT Karlsruhe



Stefan Dittmaier
Theoretical Particle Physics
Albert-Ludwigs Universität Freiburg



Alexander Lenz
Theoretical Particle Physics
Universität Siegen

Herbstschule 2024 in Bad Honnef: Lectures - large lecture hall

Main lectures

- Standard Model precision physics (4h)
Kirill Melnikov (KIT)
- Higgs and electroweak physics at the LHC (4h)
Marumi Kado (MPI)
- QCD and jets at the LHC (4h)
Peter Uwer (HU Berlin)
- Physics beyond the Standard Model (4h)
Matthew McCullough (CERN)
- Flavour Physics (3h)
Marco Gersabeck (U Manchester)
- Dark Matter (3h)
Felix Kahlhoefer (KIT)
- Quantum Computing (3h)
Lena Funcke (Bonn)

Herbstschule 2024 in Bad Honnef: Exercises

large lecture hall- old lecture hall- seminar room

Feynmandiagramme für Anfänger



Thorsten Ohl
— Universität Würzburg —
<ohl@physik.uni-wuerzburg.de>

Loop Diagrams

Stefan Kallweit, Milano-Bicocca U.,

ideally 3 times 15

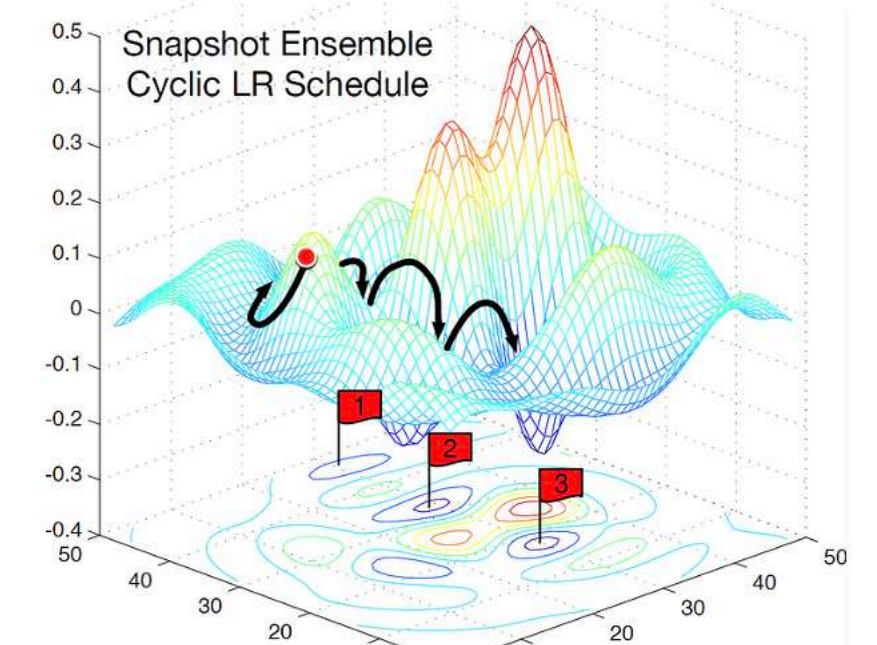
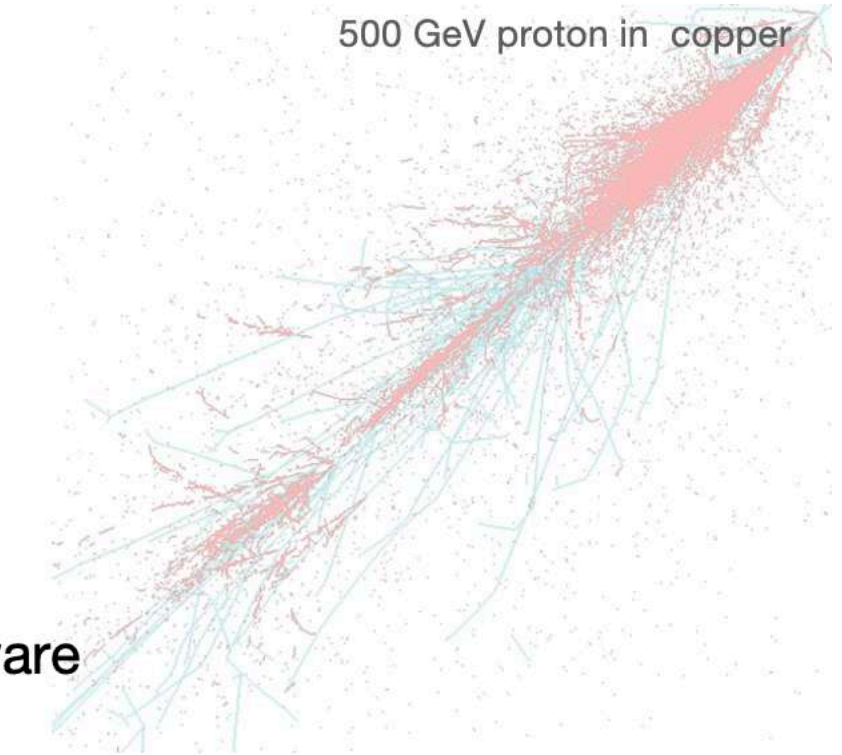
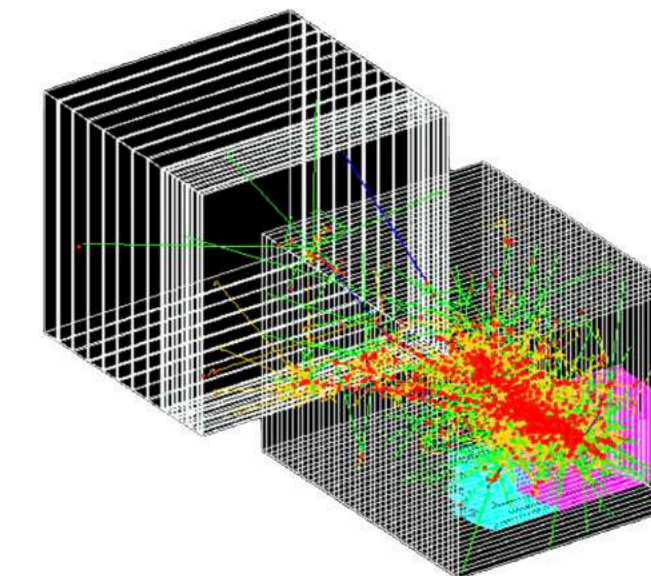
Neural networks for calorimetry

• What to expect:

Jan Kieseler, KIT

- Dive into calorimeter physics
- Hands-on simulation of your own calorimeter designs with state-of-the-art software
- Hands-on course on building blocks for neural networks and their implementations
- Application of advanced neural networks to particle energy reconstruction in calorimeters

- Final challenge: produce the best calorimeter and reconstruction for a given cost and space budget



Herbstschule 2024 in Bad Honnef: Groups
large lecture hall- old lecture hall- seminar room

Juliette Alimena

DESY/CMS

A

Christoph Borschensky

KIT/Theo.

Jochen Heinrich

LMU/ATLAS

B

Maria Laura Piscopo

Siegen/Theo.

Arnd Behring

CERN/Theo.

C

Jan Kieseler

KIT/Exp.

Herbstschule 2024 in Bad Honnef: Groups

Name	Type	Group	Session
Alessia Brignoli	Detector development	A	1
Ali Mohamed	Theoretical HEP	A	1
Paula Sophie Scholz	Experimental HEP	A	1
Agrim Aggarwal	Experimental HEP	A	2
Emanuel Meuser	Detector development	A	2
James Carter	Theoretical HEP	A	2
Jamie Gooding	Experimental HEP	A	3
Jose Angel Hernandez Cuevas	Theoretical HEP	A	3
Jost Von Den Driesch	Experimental HEP	A	4
Leon Stoecker	Theoretical HEP	A	4
Boyang Yu	Experimental HEP	A	5
Maria Toms	Experimental HEP	A	5
Vincent Riechers	Theoretical HEP	A	5
Melisa Akdag	Experimental HEP	A	6
Rosy Caliri	Theoretical HEP	A	6

Lars Sowa	Theoretical HEP	C	1
Mathias Backes	Experimental HEP	C	1
Johanna Matthiesen	Experimental HEP	C	2
Oskar Tittel	Experimental HEP	C	2
Tim Molzberger	Theoretical HEP	C	2
Aryan Borkar	Experimental HEP	C	3
Theodoros Manoussos	Experimental HEP	C	3
Doga Elitez	Experimental HEP	C	4
Romal Kumar	Theoretical HEP	C	4
Arianna Wintle	Detector development	C	5
Giacomo Ruisi	Theoretical HEP	C	5
Jo Reimer	Theoretical HEP	C	6
Lukas Ebeling	Experimental HEP	C	6
Rasmus Partzsch	Detector development	C	6

Anne Gaa	Experimental HEP	B	1
Olha Lavoryk	Experimental HEP	B	1
Sara Ditsch	Theoretical HEP	B	1
Jan Hadlik	Theoretical HEP	B	2
Rufa K M Rafeek	Experimental HEP	B	2
Andreas Ulm	Detector development	B	3
Celine Stauch	Experimental HEP	B	3
Kai Sieja	Theoretical HEP	B	3
Jessica Höfner	Experimental HEP	B	4
Mattis Harhoff	Theoretical HEP	B	4
Naomi Davis	Detector development	B	4
Katharina Häußler	Experimental HEP	B	5
Yann Stoll	Theoretical HEP	B	5
Dominik Suelmann	Theoretical HEP	B	6
Martin Bartl	Experimental HEP	B	6

Herbstschule 2024 in Bad Honnef: Evening lectures - large lecture hall

Anne Lauscher (Hamburg) - Ethics and AI

Hendrik Hildebrandt (Bochum) - Cosmology (EUCLID)

Thoms Mannel (Siegen) - Historic View on Maria Laach

Herbstschule 2024 in Bad Honnef: Excursion/Hike

Sunday Hike: short version (start at 16:00) and long version (Start 13:00). For dinner everybody will be hopefully back

Saturday afternoon excursion - 3 possibilities:

- 1) Paths into democracy - Bonn was after the WW2 for many decades capital of Germany; walk through the former government area
- 2) Drink doch ene met - Pubs in Bonn
- 3) Sustainability in Bonn - find regional, ecological and fair engagement

Distribution of participant on Wednesday/Thursday

The tours start at 14:30 and we have to leave the Physikzentrum at 14:00



Herbstschule 2024 in Bad Honnef: Social Media

← **Herbstschule HEP (fka Maria Laach)**
67 posts



Maria Laach School 2023

...   **Following**

Herbstschule HEP (fka Maria Laach)
@AthanasiusReal Follows you

Man muß auch einmal auf ein Opfer verzichten können!
[Translate bio](#)

herbstschule-hep.tp.nt.uni-siegen.de  Joined September 2022

10 Following 48 Followers

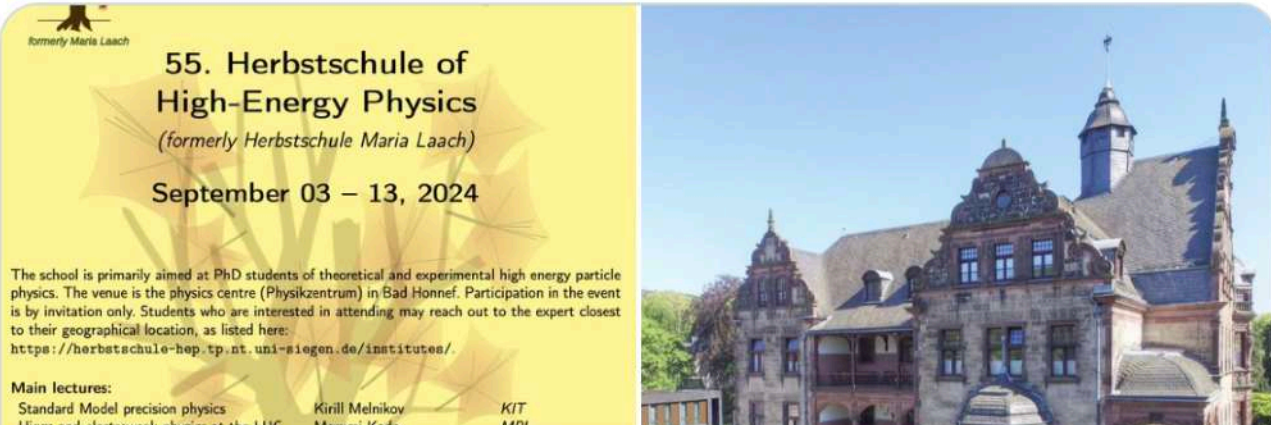
 Followed by Martin Bauer, Julia Harz, and 8 others you follow

Posts Replies Media

↻ Herbstschule HEP (fka Maria Laach) reposted

 **Alexander Lenz** @alexlenz42 · Jul 25

Still a few place available at the Herbstschule in Bad Honnef (formerly Maria Laach) - please contact us, if your are interested or if you know interested students!



Instagram



#herbstschule2024



Willkommen im Physikzentrum !

Short History of the House

- 1906 home for young ladies of higher descent as teachers of a household school for girls of lower descent

more information downstairs...



Unterricht im Flecken.



Flecken II



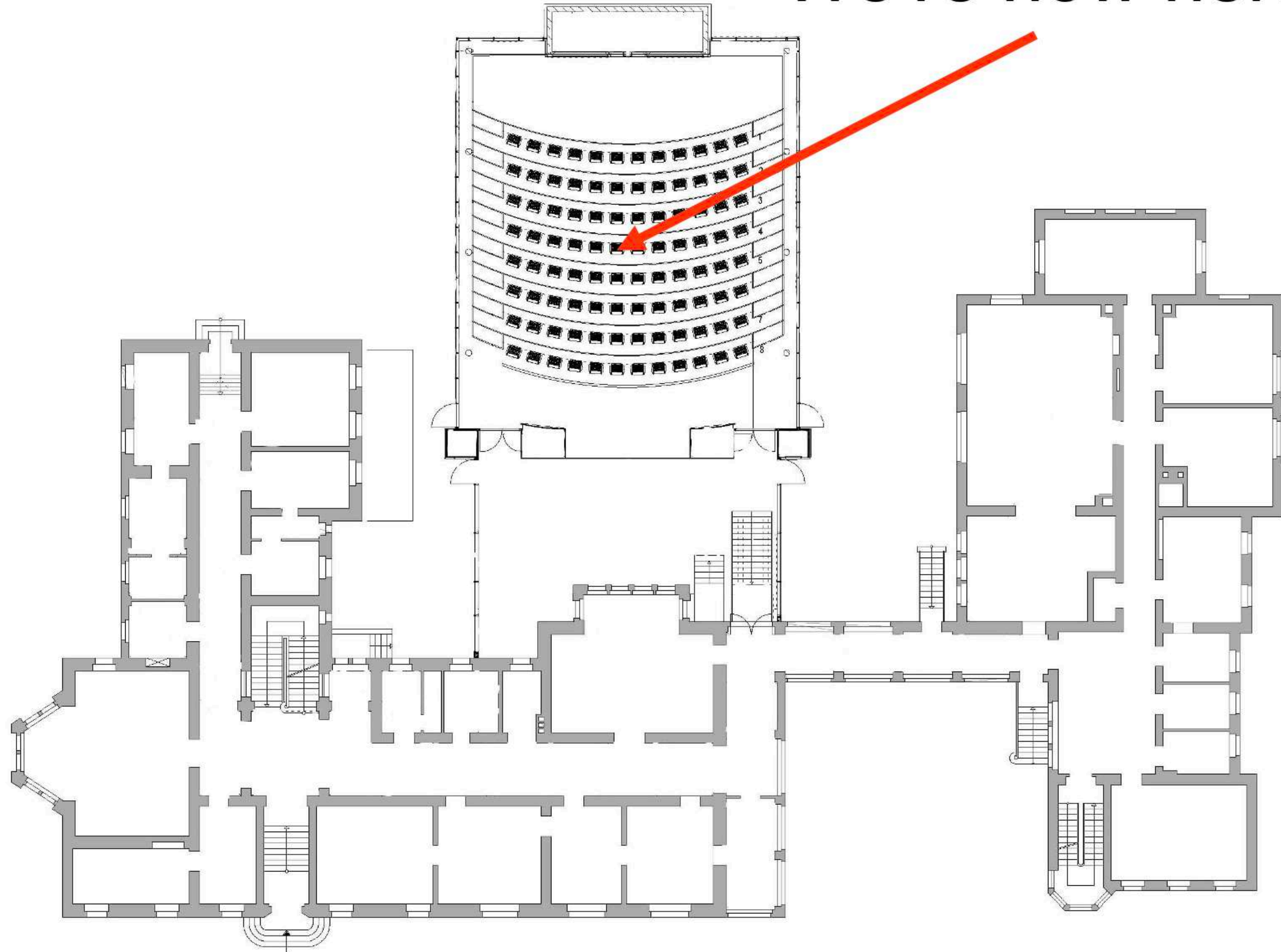
Flecken III

Short History of the House

- 1906 home for young ladies of higher descent as teachers of a household school for girls of lower descent
- since 1976 house of the German Physical Society



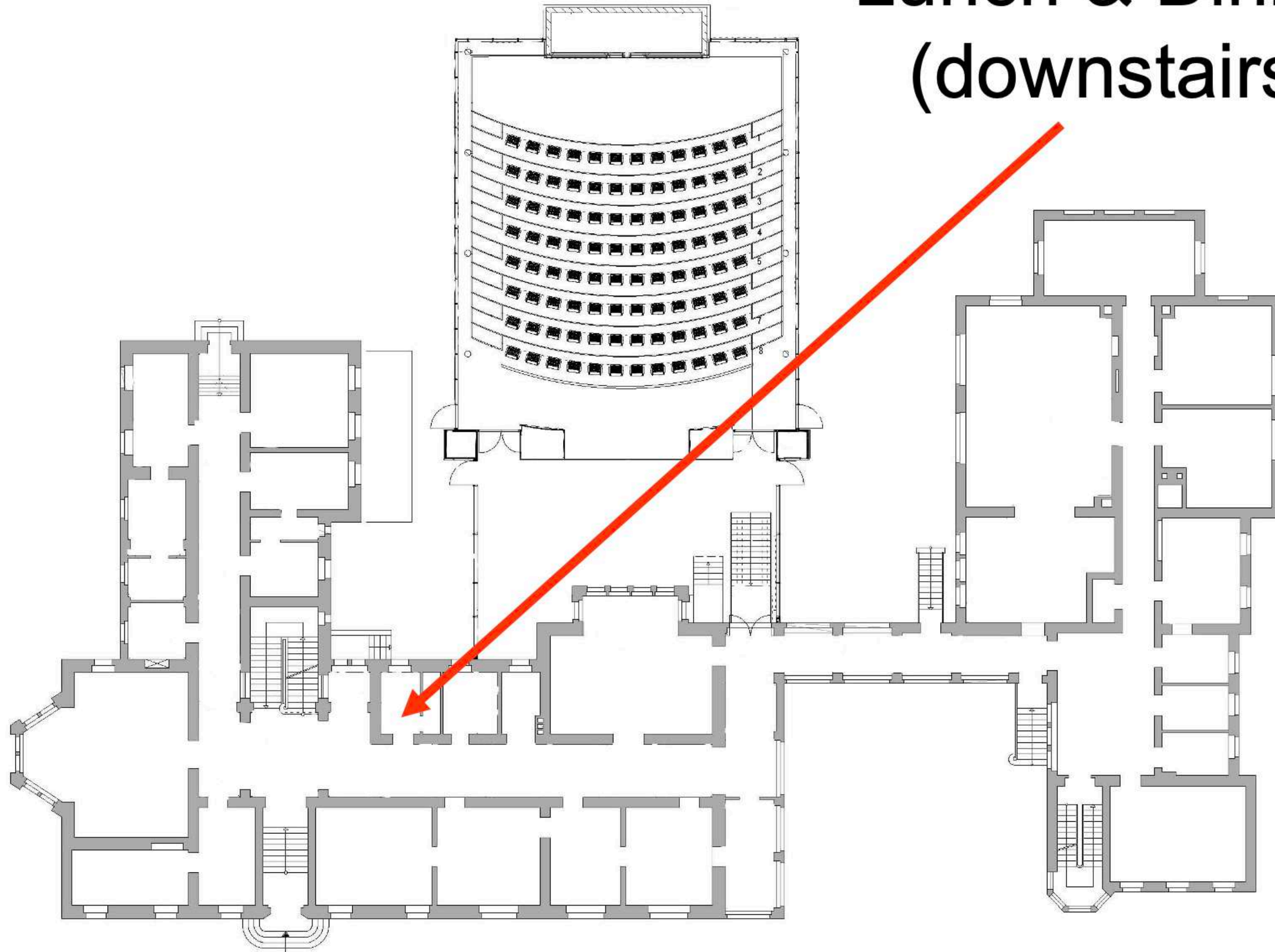
We're now here



12:30

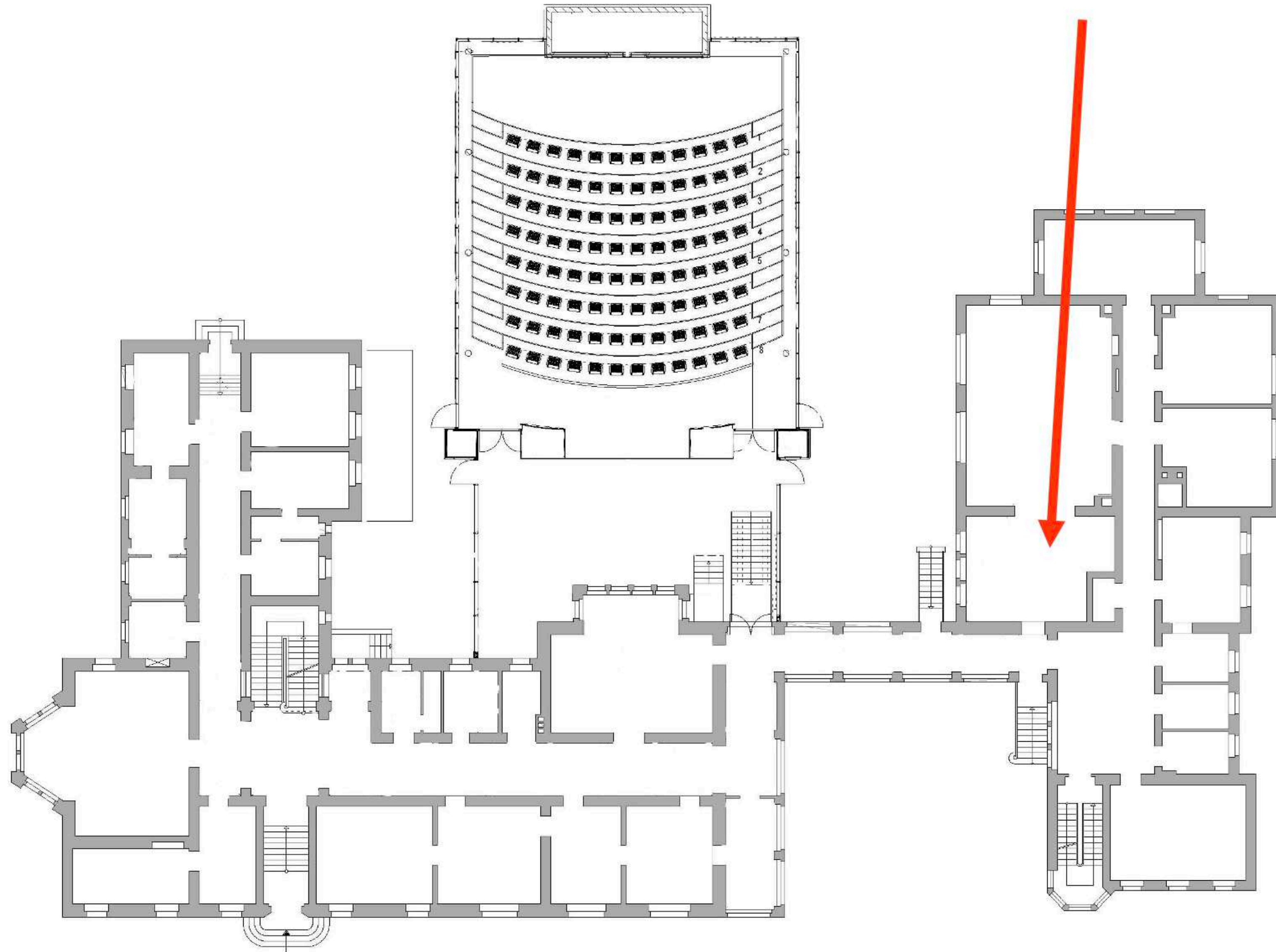
18:30

Lunch & Dinner (downstairs)

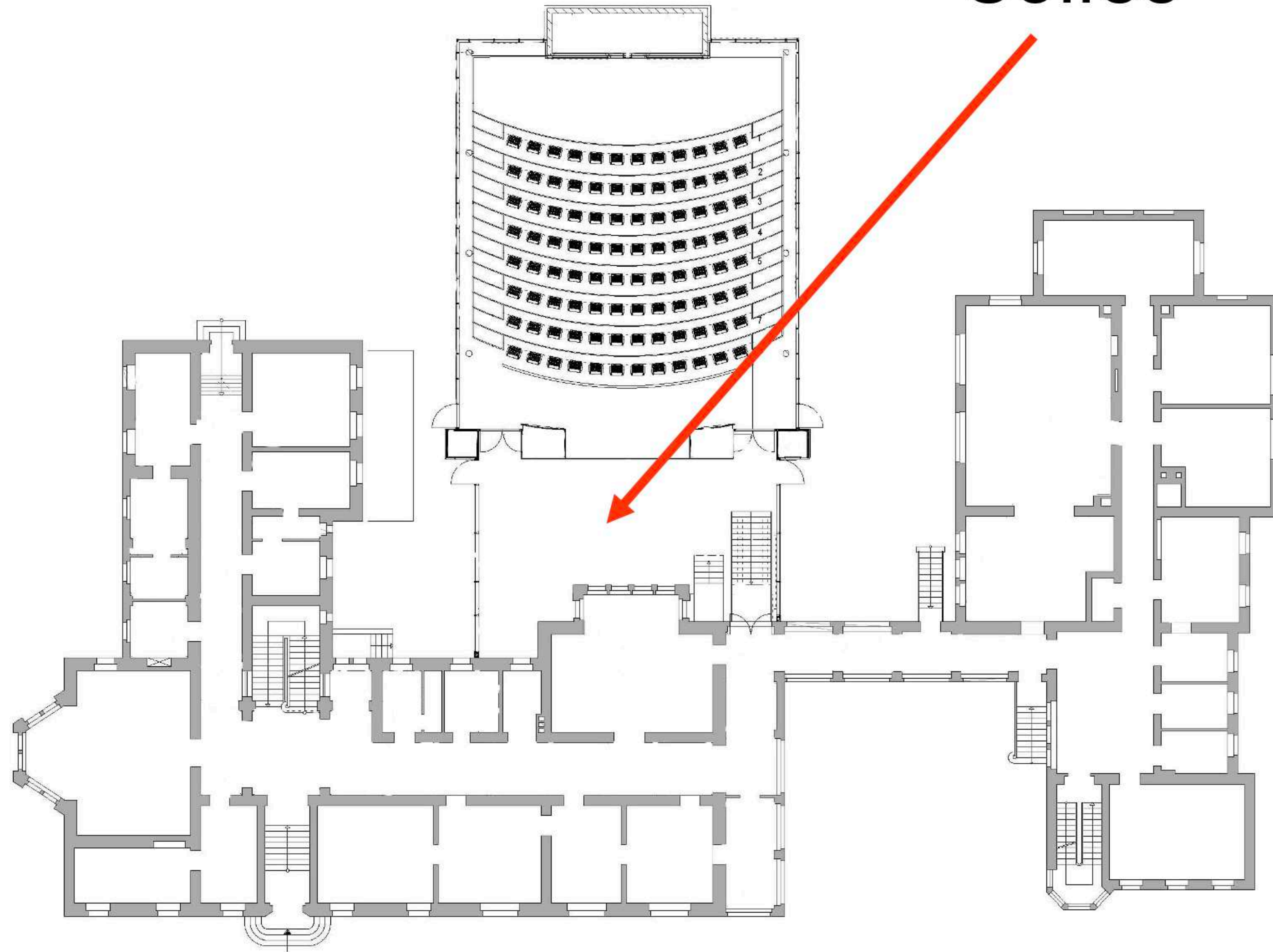


7:30 - 9:00

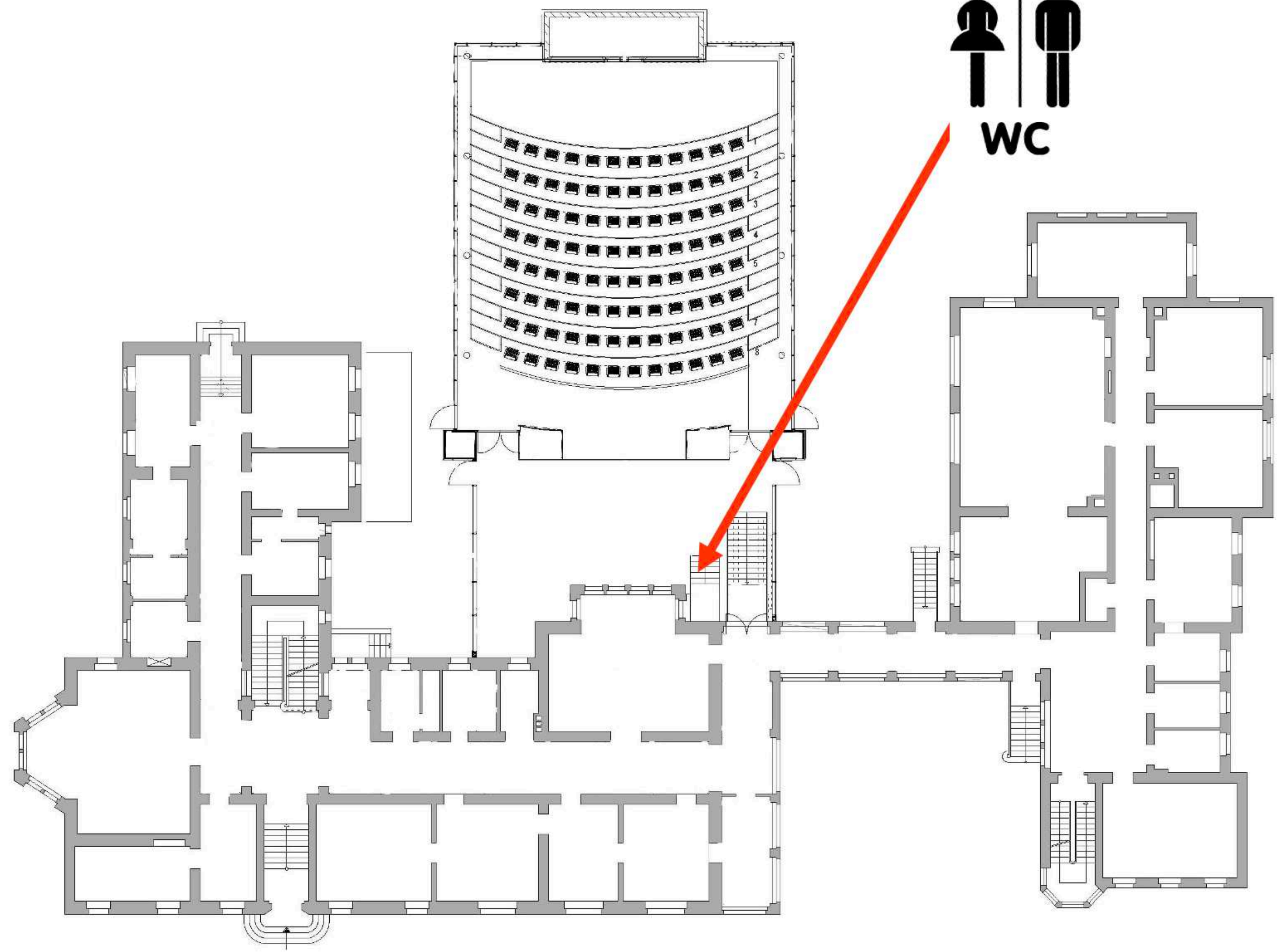
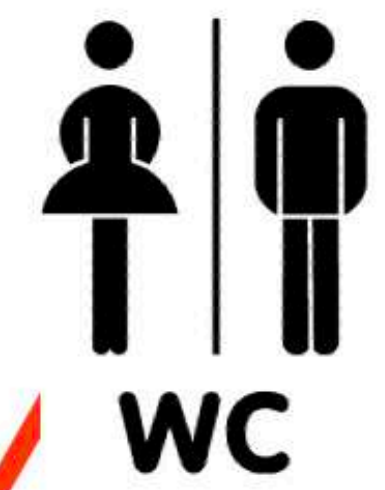
Breakfast



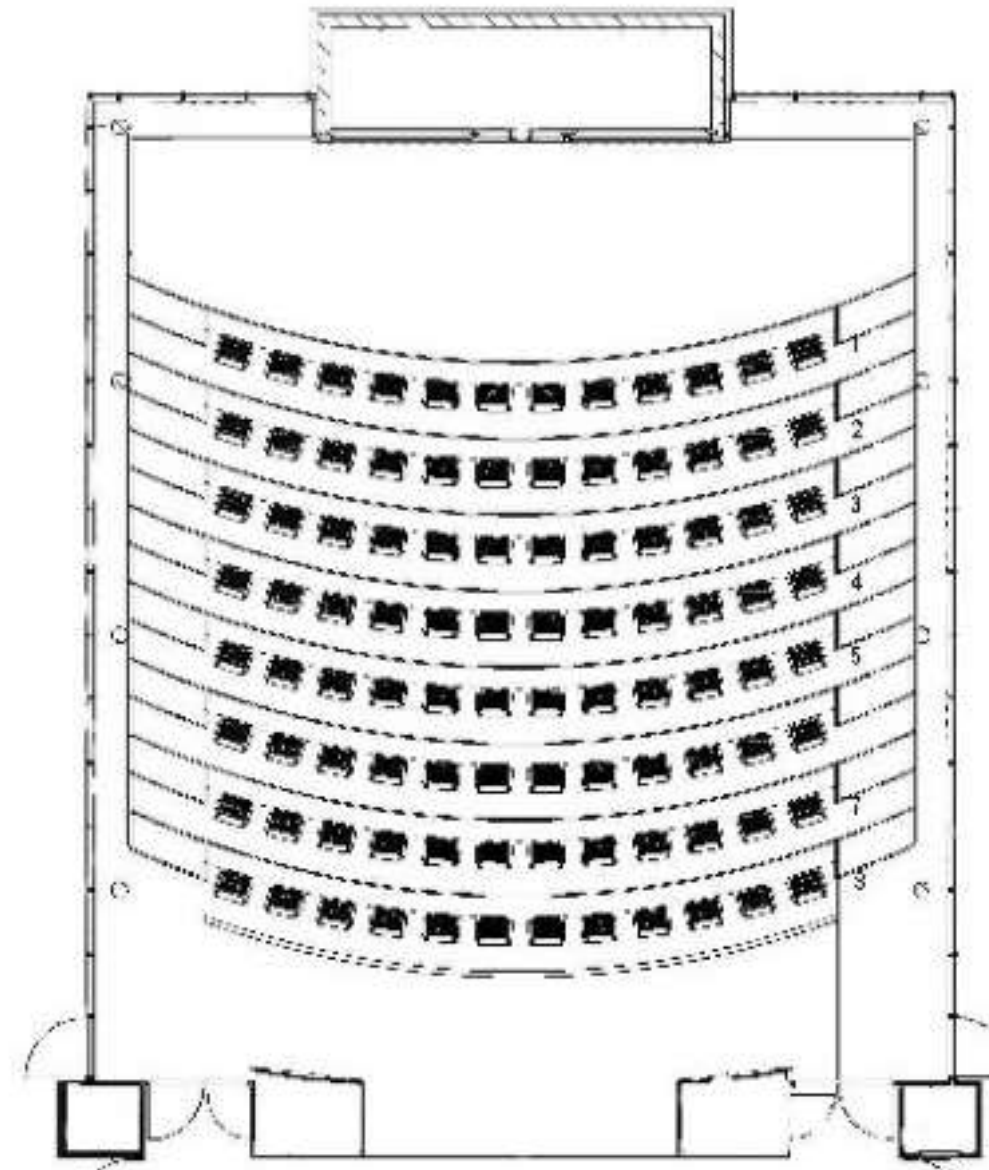
Coffee



Toilets



Hard work/Fun

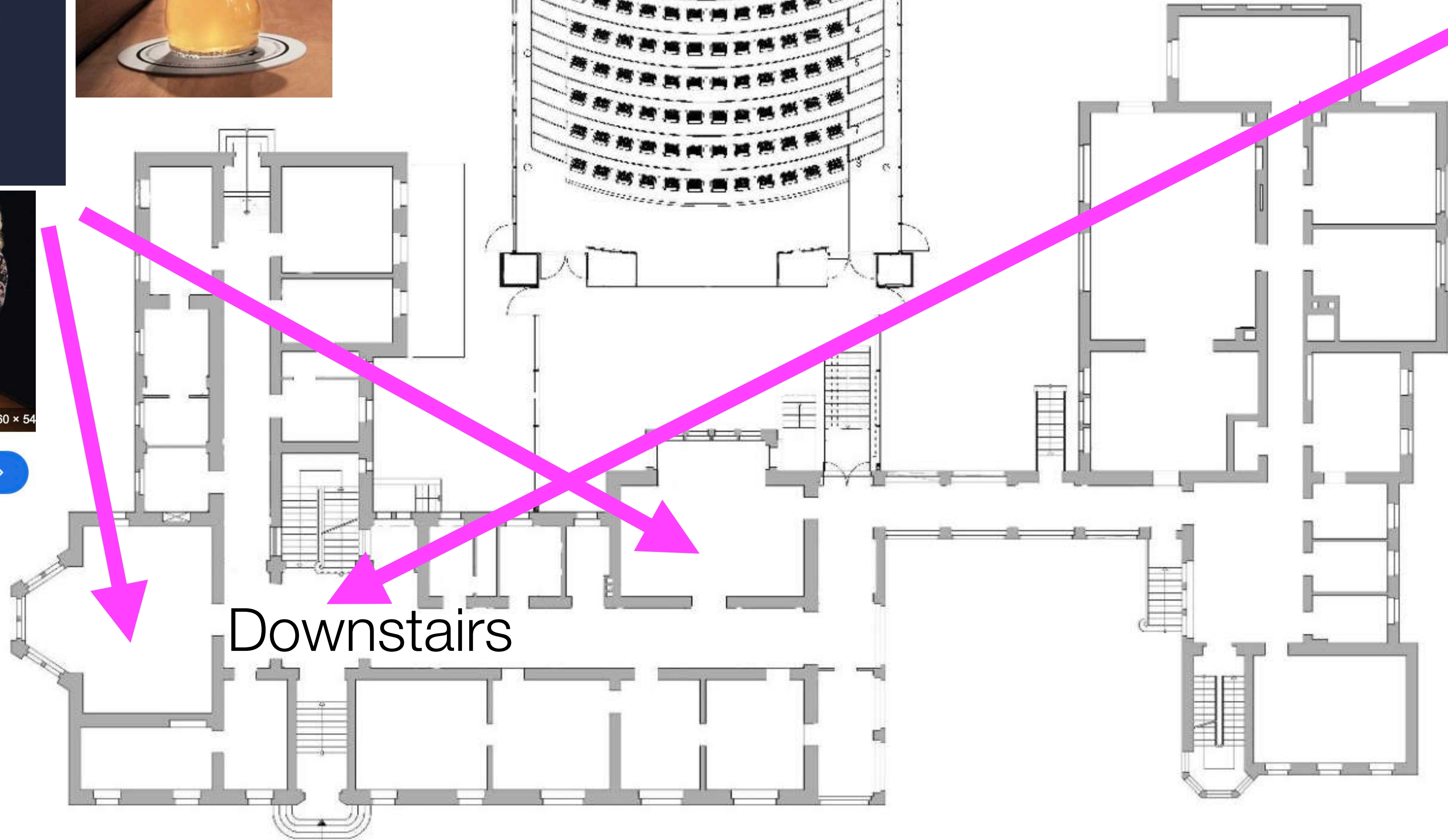


Fun

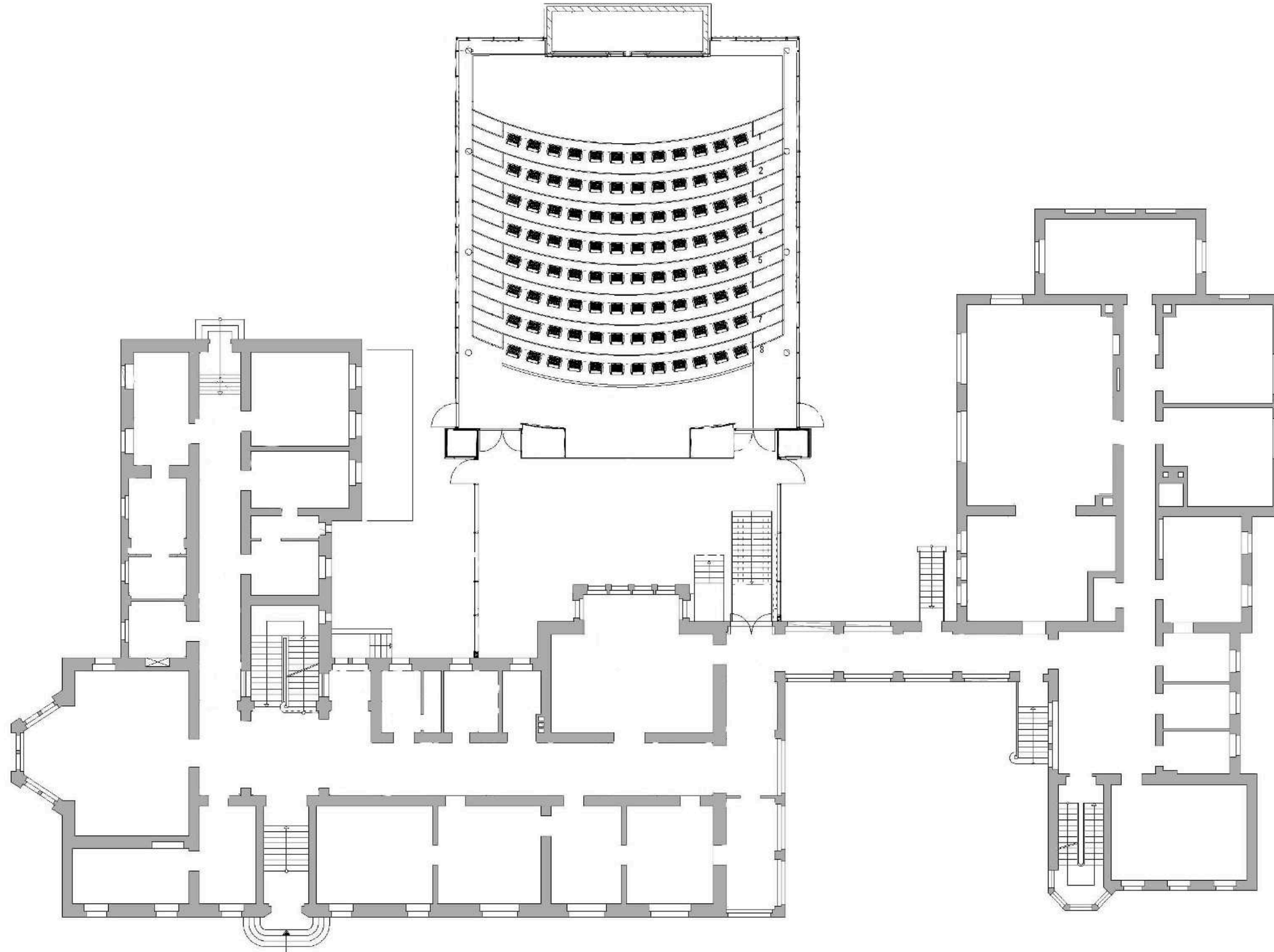


Was spricht noch für die Ehe? Der Philosophische Stammtisch

[Watch >](#)

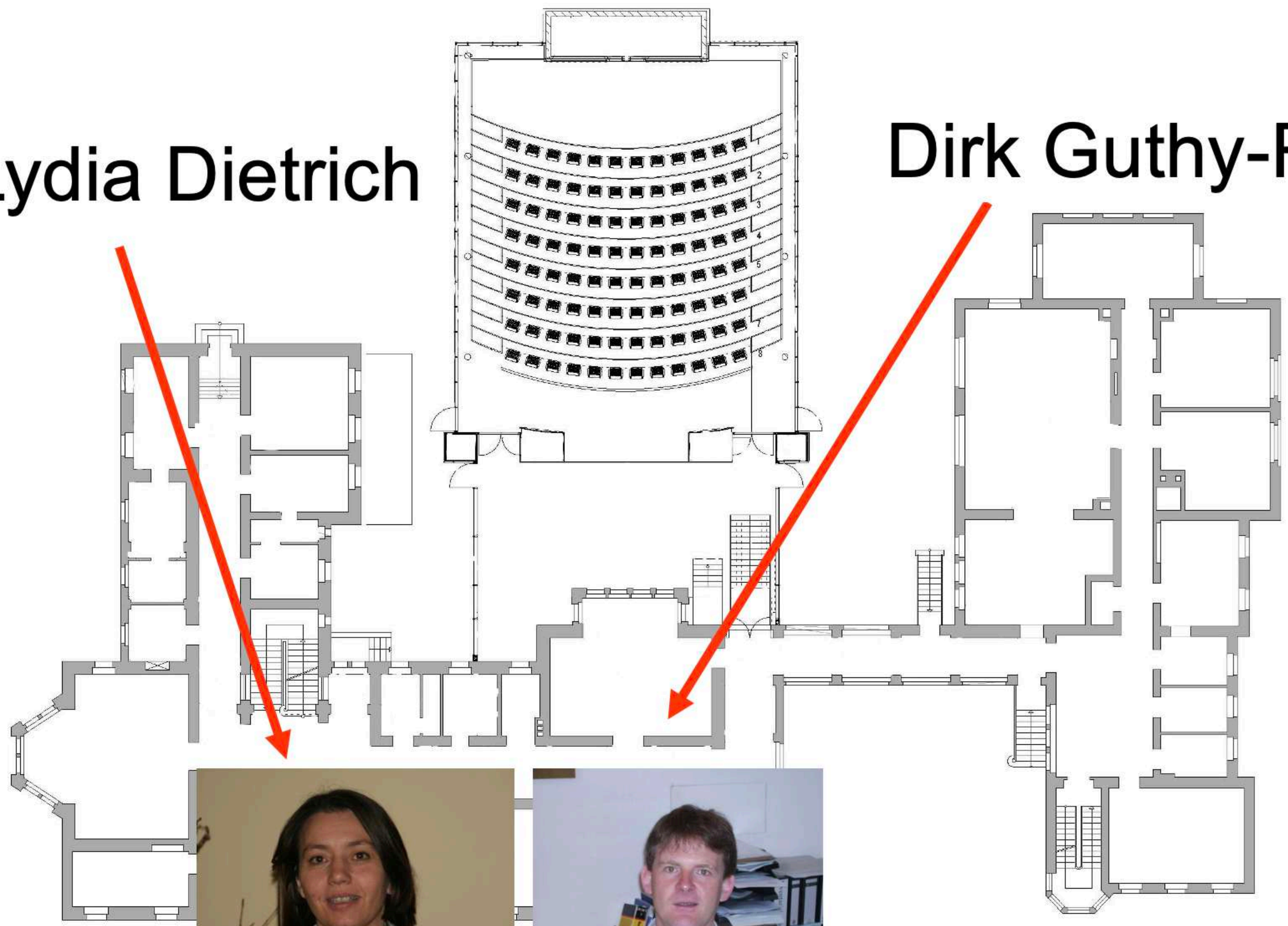


Questions?



Lydia Dietrich

Dirk Guthy-Rahn



**IN CASE OF
FIRE**



**EXIT BUILDING
BEFORE TWEETING
ABOUT IT**

Prevent fire



Smoking and open fire in the building are strictly forbidden

There is a smoke detector in every guest room!



Fire brigade

false-alarm-visit

costs 1000 €



In case of fire:

- Alert others (sleeping or having headsets)
- Help people with special needs
- Close windows and doors
- Leave the building:
 - Do not use elevator, use the stairs

Gathering place in case of fire



In a safe location, call **112**
to report the emergency

House Rules

Breakfast: 7:30-9:00, Lunch: 12:30 Dinner: 18:30

Beverages (drinks ...)

-> mark at list

-> payment: on Friday until 13 a.m.

Big Water Bottles
are for free



Door code: 4711 #
or use your room transponder

Freedom and safety



- To activate the lock press the transponder button
- If you don't lock your room door it will stay open!
- Keep your transponder during the whole meeting, don't put it to the key hanger!

Freedom and safety

Your room transponder also opens all outer doors!



This is a transponder
signal receiver

- To unlock the door
just press
the transponder button

Please be quiet outside after 10 p.m.



Have fun!

