

# MGK - Integrated Research Training Group



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

## A brief review and future prospects



H.-W. Hammer, **A. Obertelli**, V. Spatz  
(**A. Arcones**, **W. Nörtershäuser**)  
Francesca Bonaiti, Maximilian Spall

SFB-Workshop, October 4-7, 2022

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## A brief review and future prospects

**young researchers from SFB funds (Oct. 22):  
29 doctoral students (7/29 female, 22/29 male)**



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qualification goals:

- (i) **excellent scientific competences on a particular aspect** of nuclear physics or nuclear astrophysics, science and technology,
- (ii) overview and broad scientific understanding of **key technologies and competences** involved in nuclear physics and related fields,
- (iii) overview and broad understanding of the **scientific activities** of the international physics community,
- (iv) fundamental skills for **scientific leadership** in research and science.

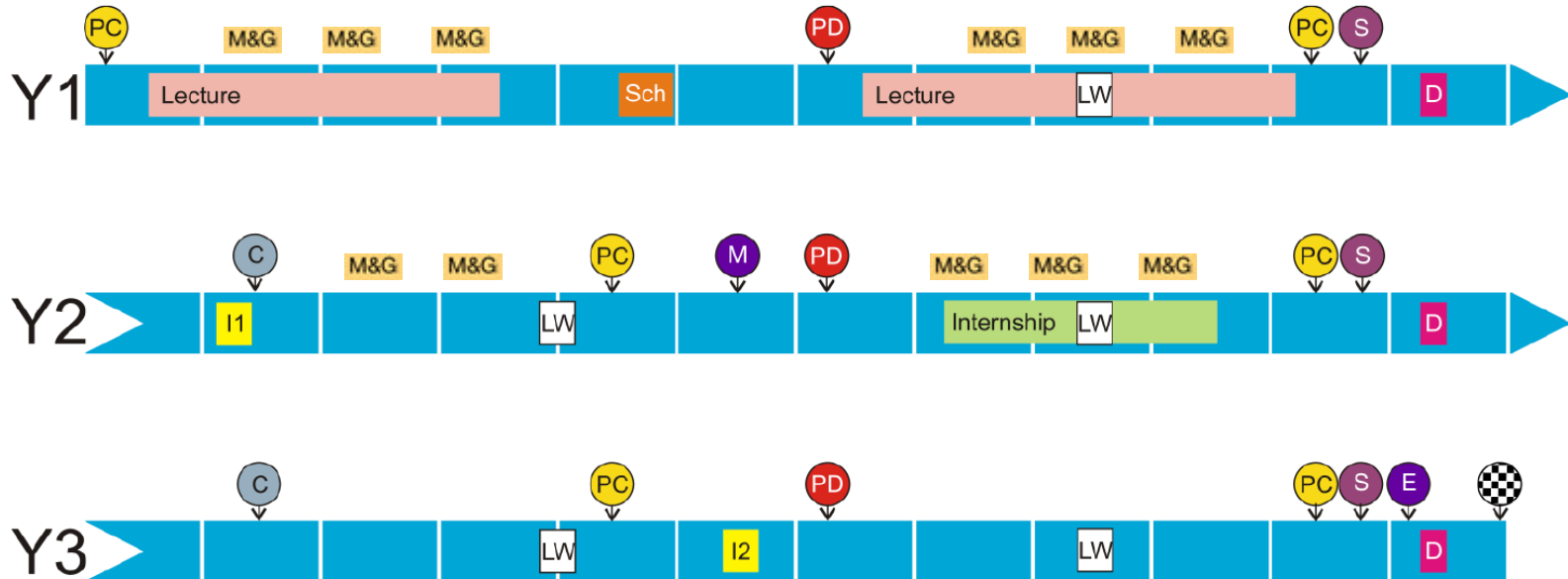
# MGK - Integrated Research Training Group (Modul Integriertes Graduiertenkolleg)




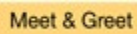






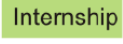






...provides an **enhanced, innovative and international environment for doctoral researchers:**

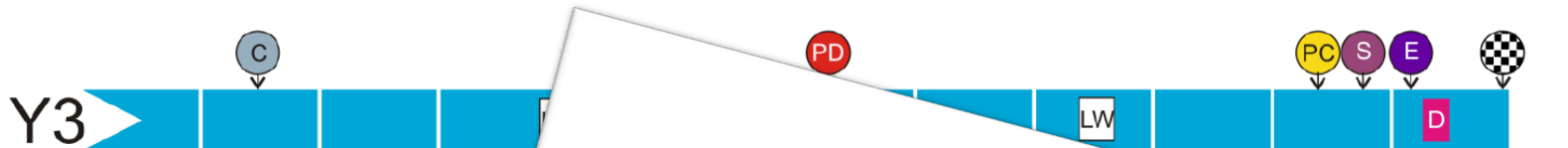
- Structured qualification scheme with regular PhD committee meetings
- Meet & Greet Events
- SFB Seminar
- SFB Physics Days with local and external junior scientists
- Topical Lecture Weeks with outstanding international guest scientists
- Research Internships for doctoral researchers

# Structured Qualification Scheme



- |   |   |   |   |   |   |   |                    |
|---|---|---|---|---|---|---|--------------------|
|  | PhD committee   |  | Professional training:<br>soft skills / selected topics |  | SFB workshop  |  | Meet & Greet       |
|  |  Mid-/End term seminar |  | Lecture   |  | Summer school   |  | DPG spring meeting |
|  | Physics Days  |  | Research internship                                     |  |  | International conference  |                    |
|  | Dissertation  |  | Lecture week  |   |   |   |                    |

# Structured Qualification Scheme



PC PhD committee

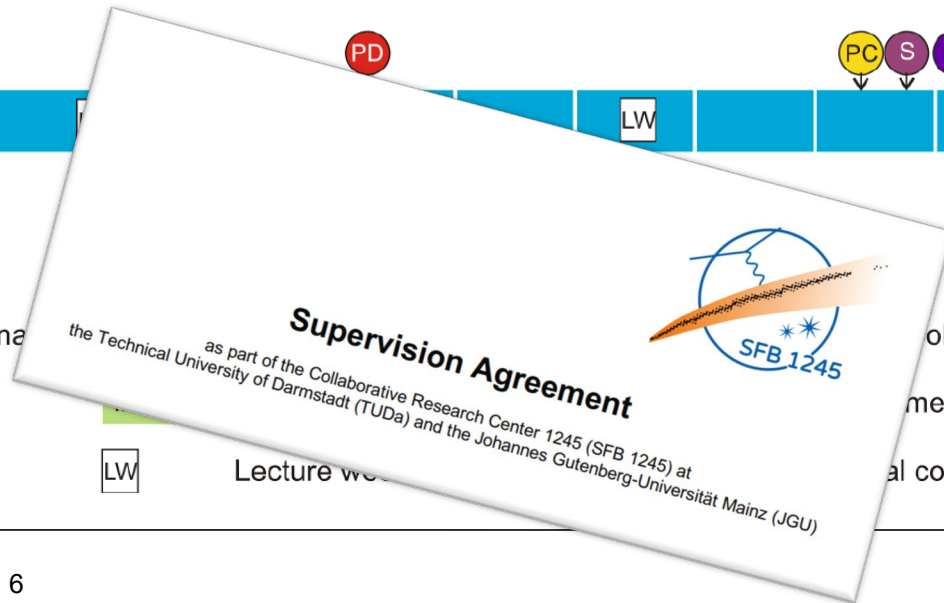
E M Mid-/End term seminar

PD Physics Days

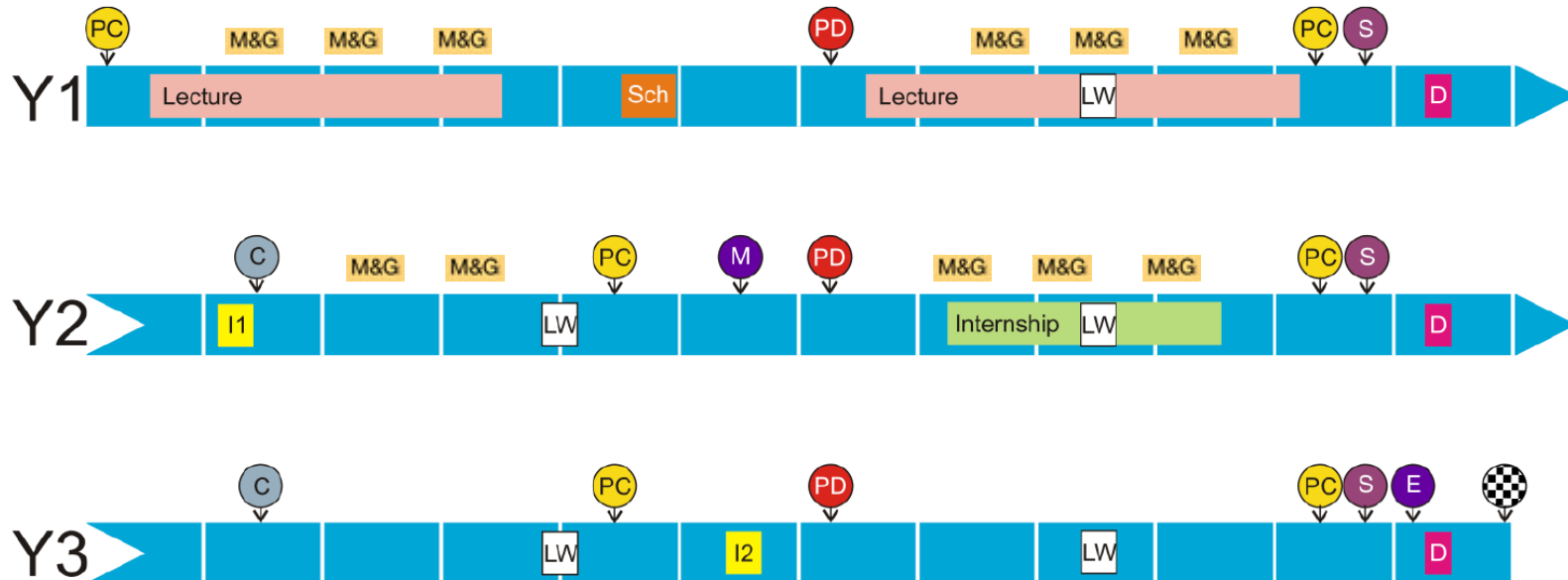
☑ Dissertation










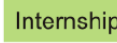





LW Lecture workshop

Meet & Greet

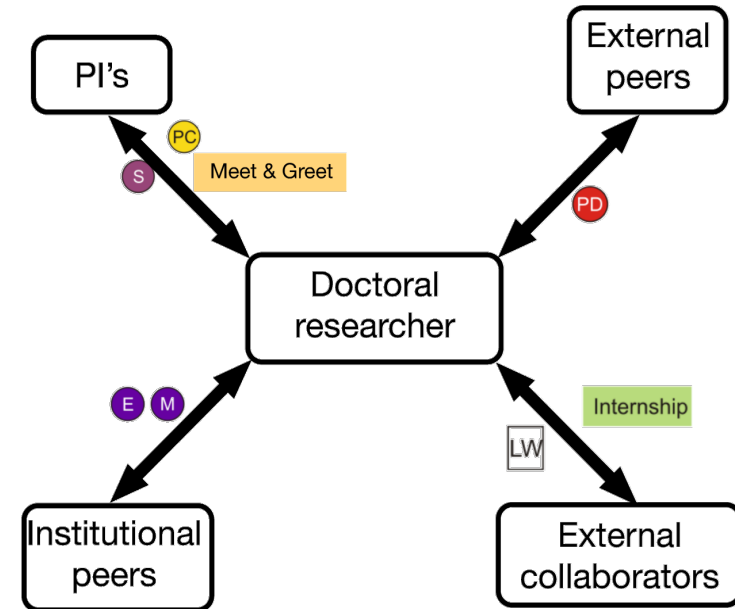


# Structured Qualification Scheme

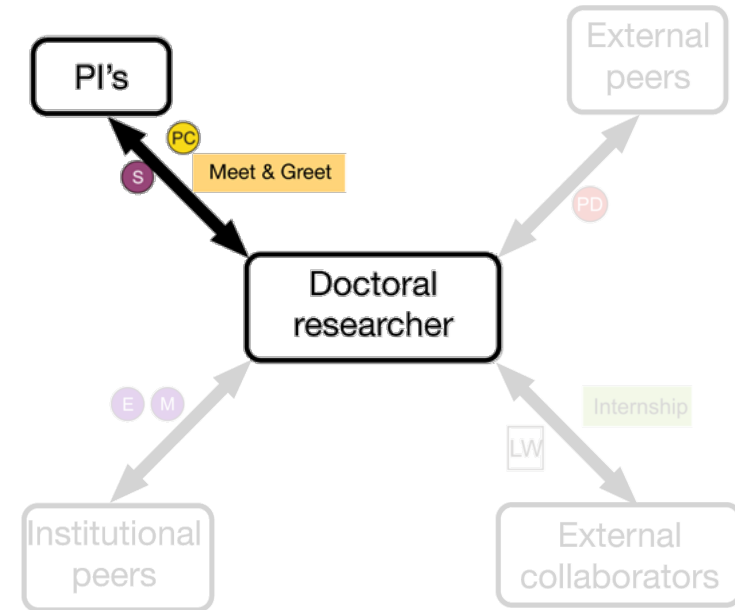


- |  |  |  |  |
|--|--|--|--|
|  <u>PhD committee</u>   |  Professional training: soft skills / selected topics |  SFB workshop   |  Meet & Greet |
|   <u>Mid-/End term seminar</u> |  Lecture  |  Summer school  |  |
|  <u>Physics Days</u>  |  <u>Research internship</u>                           |  DPG spring meeting   |  |
|  Dissertation   |  <u>Lecture week</u>                                  |   International conference |  |

# Structured Qualification Scheme

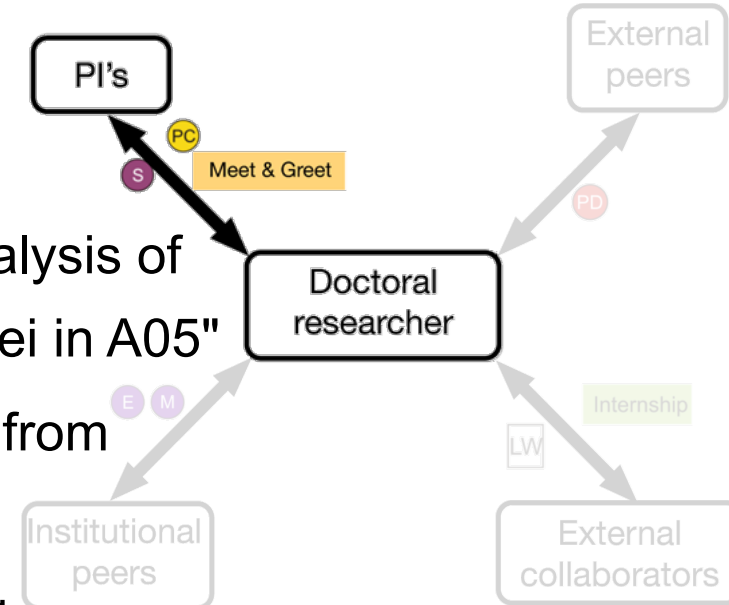






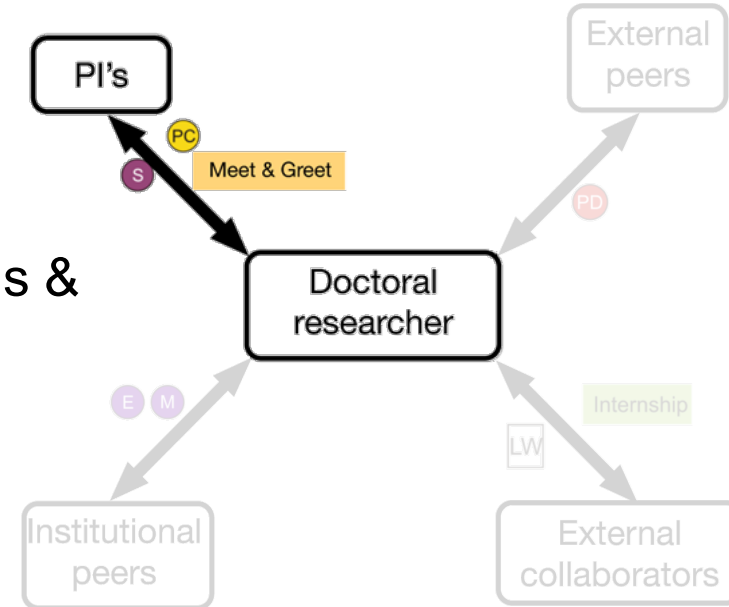
# Meet & Greet Events

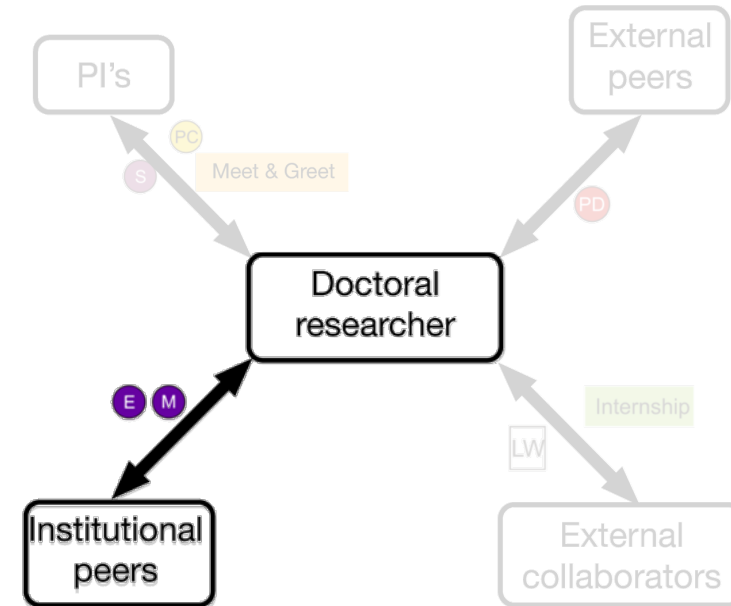
- no events in 2020 due to the pandemic
- Mai 26, 2021 P. Capel (Zoom): „Halo EFT analysis of nuclear reactions with one-neutron halo nuclei in A05“
- July 21, 2021 H. Liu (Zoom): „Shell evolution from stable to neutron-rich nuclei“
- Sept. 29, 2021 A. Bauswein (Zoom): „Probing fundamental physics with neutron star collisions“



# Meet & Greet Events

- May 11, 2022 S. Bacca: „Response functions & polarizability of neutron-rich nuclei“
- July 6, 2022 W. Nörtershäuser  
→ postponed to WS 22/23



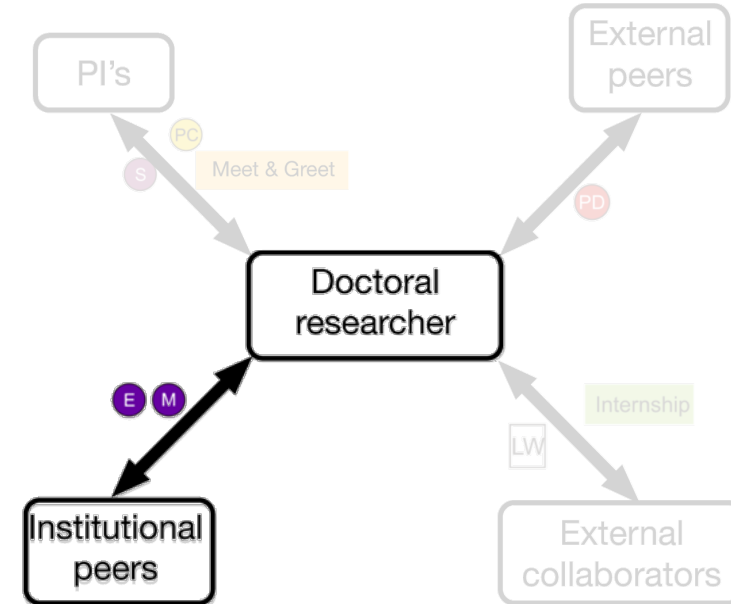


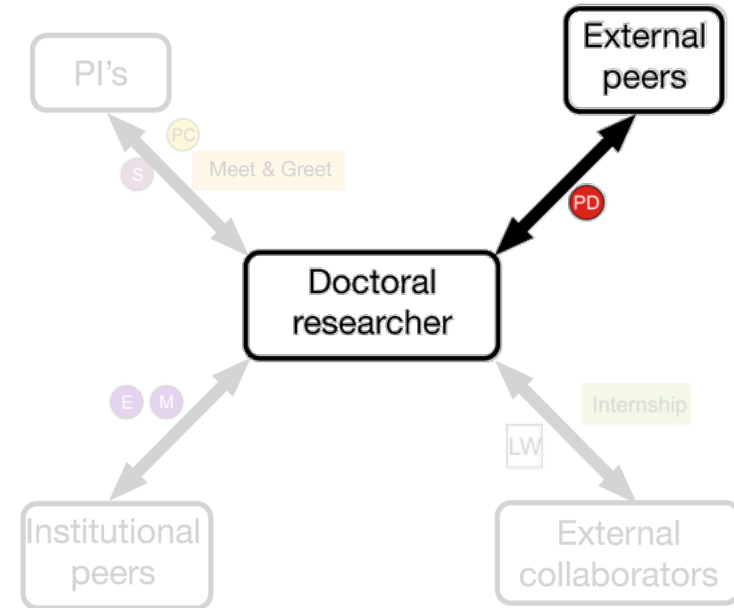
# SFB Seminar



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23.04.2020	Patrick van Beek	Major Upgrade and Commissioning of the Photon Tagger NEPTUN
30.04.2020	Axel Frotscher	The (p,3p) reaction mechanism in neutron rich nuclei
07.05.2020	Stylianos Nikas	The creation of the first r-process peak in the aftermath of NSMs
28.05.2020	Jan Hoppe	Probing chiral interactions to N3LO in medium-mass nuclei
04.06.2020	Tobias Mongelli	Carbon Isotopes in the In-Medium NCSM
18.06.2020	Sabrina Schäfer	New equations of state constrained by nuclear physics, observations & high-density QCD calculations
19.11.2020	Sebastian Dietz	Three-body resonances in pionless effective field theory
17.12.2020	Live-Palm Kubushishi	Nuclear shell effects in nuclear pasta
21.01.2021	Felix Sommer	Nuclear Charge Radii of Nickel Isotopes across the N=Z=28 Doubly Magic Shell Closure
28.01.2021	Lars Zurek	Comparing different density-matrix expansions for long-range pion exchange



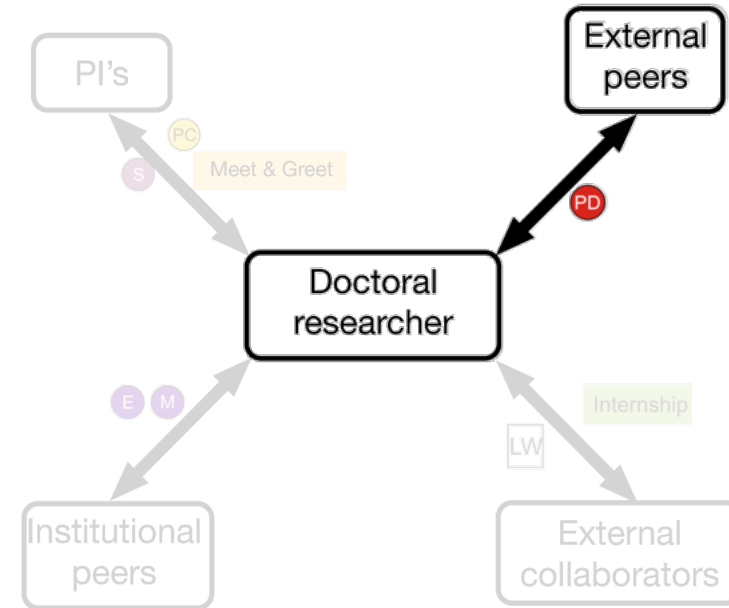


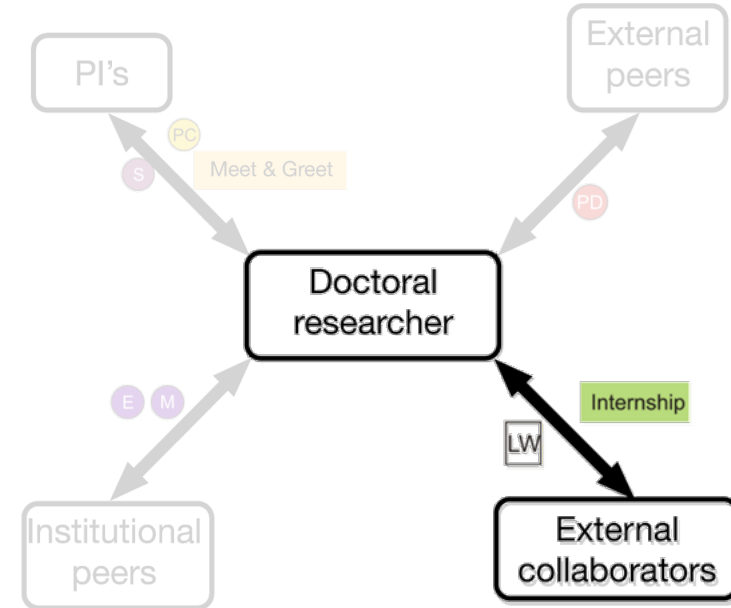
# SFB Physics Days

Bonn/Cologne Jan/Feb 2020

not useful via Zoom

→ on hold since then

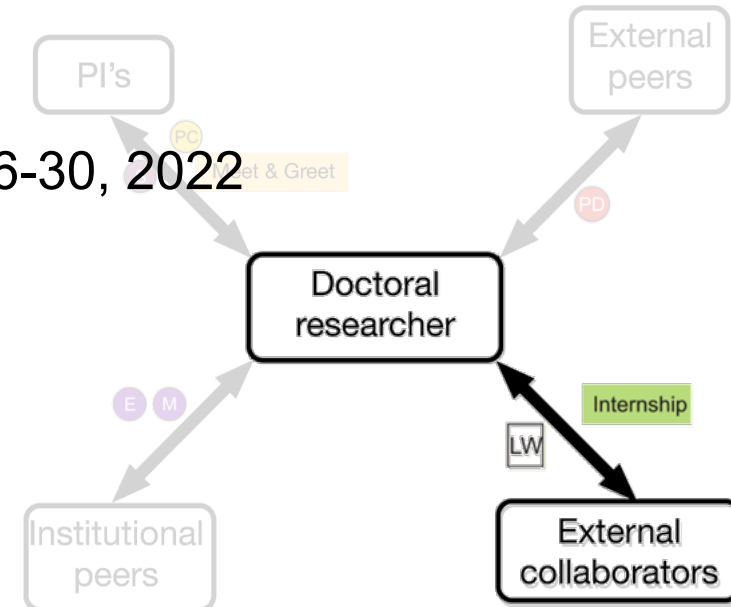






# Topical Lecture Weeks

Lecture Week with Evgeny Epelbaum Sept. 26-30, 2022



# Topical Lecture Weeks

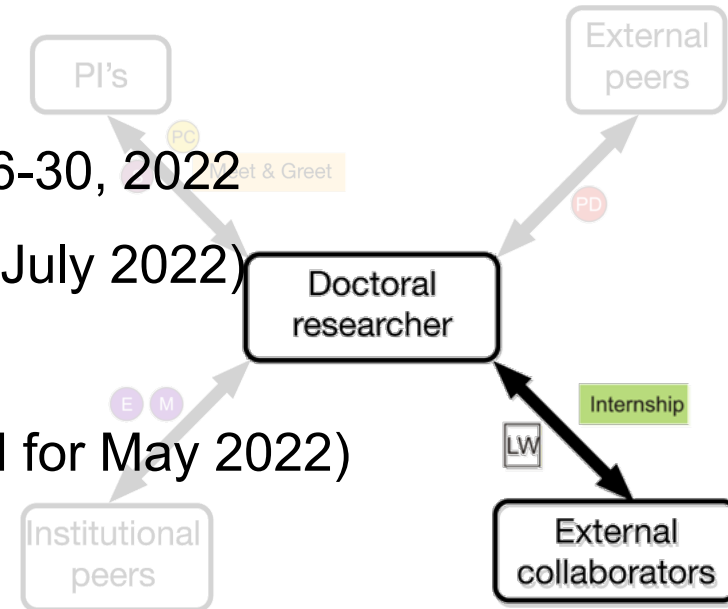
Lecture Week with Evgeny Epelbaum Sept. 26-30, 2022

Lecture Week with Isao Tanihata (planned for July 2022)

had to be postponed

Writing course with Marialuisa Aliotta (planned for May 2022)

had to be postponed



Ann-Cecilie Larsen in early 2023?

Ritu Kanungo probably April 2023

# Research Internships

2020:

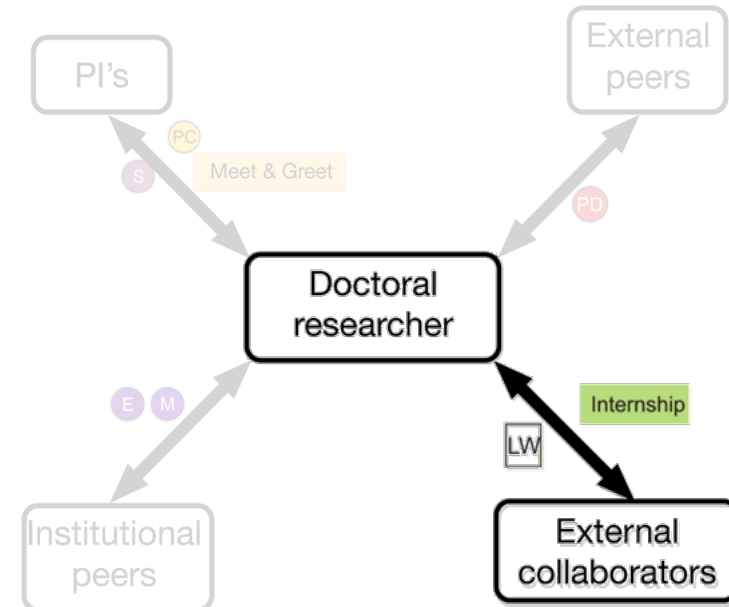
J. Hoppe

2021:

F. Bonaiti

M. Goebel

M. Heinz (→supported from ERC grants)



# Short-term recruitment stipends

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- Juli 20 - Aug 20: Marta Molero
- April 21 - Sept 21: Igor Jurosevic
- Jan 22 - März 22: Giacomo Ricigliano

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⇒ use them.... !!

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Improvements for 3<sup>rd</sup> funding period?

