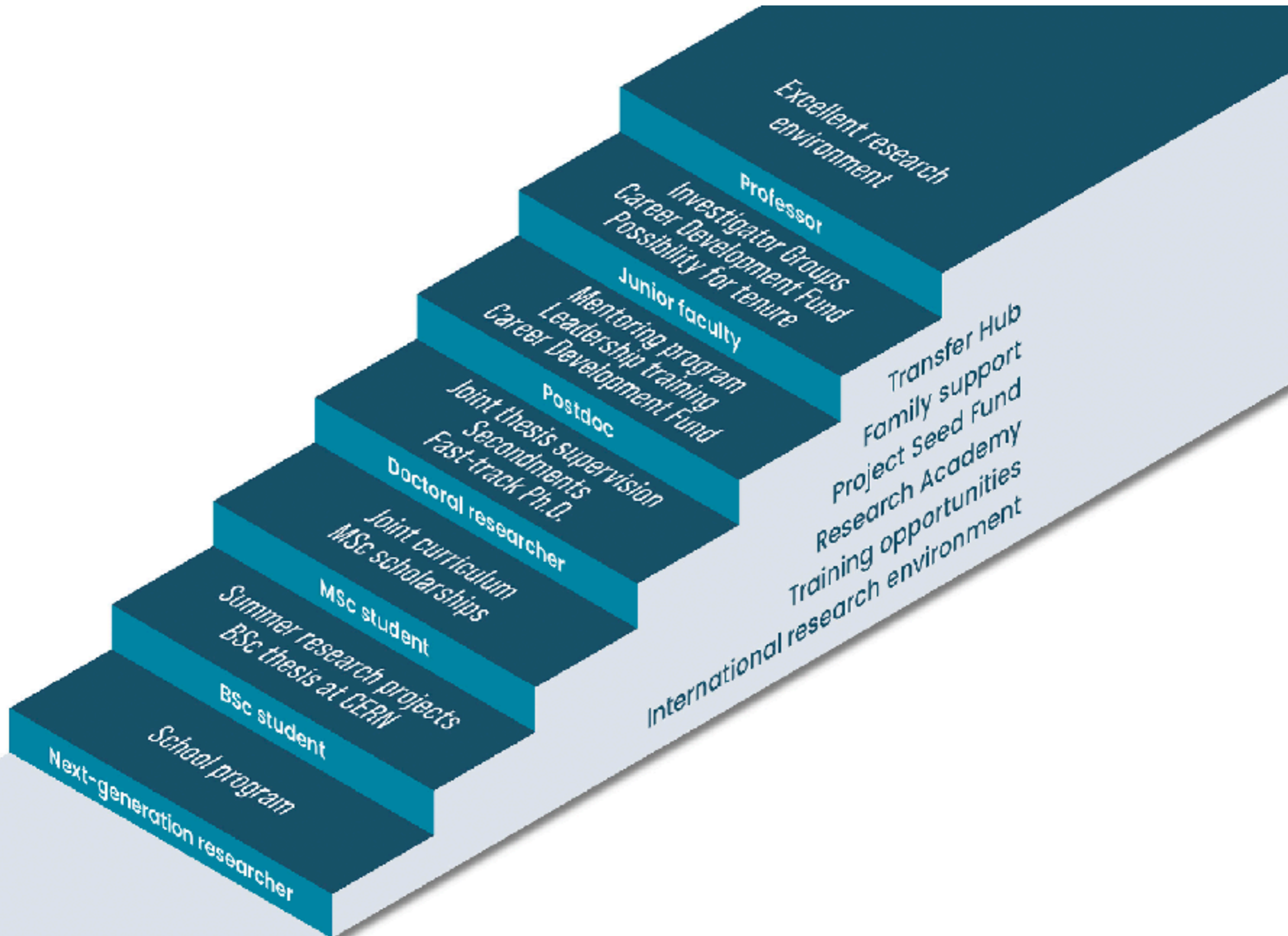


CmF Retreat, 9.-11.3.2026, Schwelm

# Color meets Flavor



color  
meets  
flavor



# Color meets Flavor



## Cluster positions:

- Research academy Coordinator - 15.3. deadline ( 9 applications)
- Science Communicator - 15.3. deadline (28 applications)

## Ihre Aufgaben:

Die Research Academy ist die zentrale Struktur für Ausbildung und Qualifikation im Exzellenzcluster „Color meets flavor“. Wir unterstützen den wissenschaftlichen Nachwuchs der vier Clusterstandorte in allen Karrierestufen. Die zu besetzende Position zeichnet sich durch ein hohes Maß an Gestaltungsspielraum, Vielfältigkeit und Flexibilität aus. Die konkreten Aufgaben beinhalten:

- Koordination des standortübergreifenden Master- und PhD-Studienprogramms Teilchenphysik
- Koordination der Praktika für DoktorandInnen, sowohl innerhalb der Clusterstandorte, als auch mit der Industrie
- Mitentwicklung eines Fast-track PhD Programms
- Koordination des Master-Stipendienprogramms
- Koordination des Bachelor-Fellowshipprogramms am CERN, sowie der Sommer-Projekte für Bachelor-Studierende
- Koordination des Mentoring- und Soft-Skill Programms für Post-Doktorandinnen
- Beratung von Studierenden, Promovierenden und Postdocs
- Mitentwicklung eines neuen Fast-Track PhD Programms
- Administration der Lehr-Website
- Management laufender Veranstaltungen
- Ankopplung des universitären Lehrprogrammes an das Cluster-Schulprogramm

## Ihr Profil:

- Abgeschlossenes Hochschulstudium im Fach Physik und erfolgreich abgeschlossene Promotion, vorzugsweise in der theoretischen oder experimentellen Teilchenphysik
- Sehr gute Kenntnisse über Universitätsstrukturen und -kulturen
- Sehr gute Deutsch- und Englischkenntnisse in Wort und Schrift
- Ausgeprägte Kommunikations- und Organisationsfähigkeiten sowie ein hohes Maß an Teamfähigkeit; Strukturiertes eigenverantwortliches und konzeptionsstarkes Arbeiten

# Research Academy Coordinator

## Task:

- ▶ centrally manage all activities related to education and qualification of ECRs within CmF

## BSc students:

- ▶ summer projects within CmF
- ▶ fellowships for BSc theses at CERN

## MSc students:

- ▶ **cross-site MSc program**
- ▶ MSc scholarships (20/year)

## PhD students:

- ▶ **fast-track PhD program**
- ▶ **graduate lecture program**
- ▶ **PhD secondment program**

## Postdocs:

- ▶ mentoring program
- ▶ soft-skill courses
- ▶ guided teaching opportunities

# Color meets Flavor



Schools



Long-term closely-supervised program for pupils to address underrepresented groups

## PRIMARY-SCHOOL PROGRAM

Natural-science program with full-time school support

## HIGH-SCHOOL PROGRAM

Online lectures

Multi-day academies at labs

Girls' Day

Schülerakademie  
Herbst 2026 in Jülich

## TEACHER PROGRAM

# Color meets Flavor



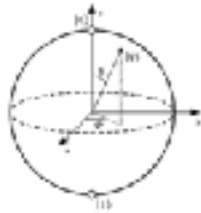
## Schools



Ankündigung für das Wintersemester 2025/26

### Quanten Computing

Prof. Dr. Alexander Lenz

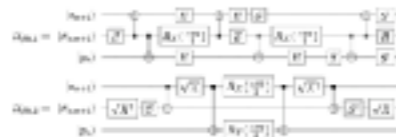


$$|\psi\rangle = \cos\frac{\theta}{2}|0\rangle + e^{i\phi}\sin\frac{\theta}{2}|1\rangle$$

- $|00\rangle \rightarrow |00\rangle$
- $|01\rangle \rightarrow |01\rangle$
- $|10\rangle \rightarrow |11\rangle$
- $|11\rangle \rightarrow |10\rangle$

Diese Vorlesungsreihe gibt eine Einführung in die Grundlagen des Quanten Computing.

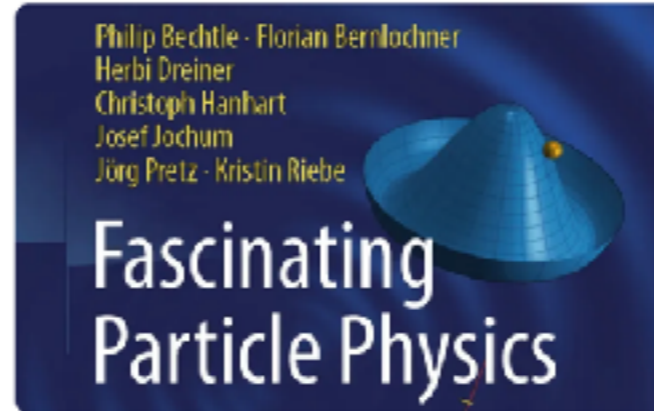
2025 feiern wir das 100-jährige Jubiläum der Entdeckung der Quantentheorie. Lange Zeit war Quantentheorie reinste Grundlagenforschung, welche ausschliesslich zum fundamentalen Verständnis unserer Welt diente, aber keinerlei praktische Anwendung hatte. Sie einigen Jahren zeichnet sich nun ein immenses Potential von Quanten Computing ab, welches bei manchen Anwendungen, herkömmliche Supercomputer bei Weitem übertreffen kann. An der Universität Siegen wurde 2010 der erste deutsche Quantencomputer in Betrieb genommen.



In dieser Vorlesung wird eine elementare Einführung in Quanten Computing gegeben und es werden auch praktische Programmierübungen an Quantensimulatoren durchgeführt. Die Vorlesung ist für Schülerinnen und Schüler ab der 10. Klasse geeignet, ebenso für Studierende und Lehrkräfte, sowie mathematisch interessierte Laien, die über Mathematik Kenntnisse auf dem Oberstufen-Niveau verfügen.

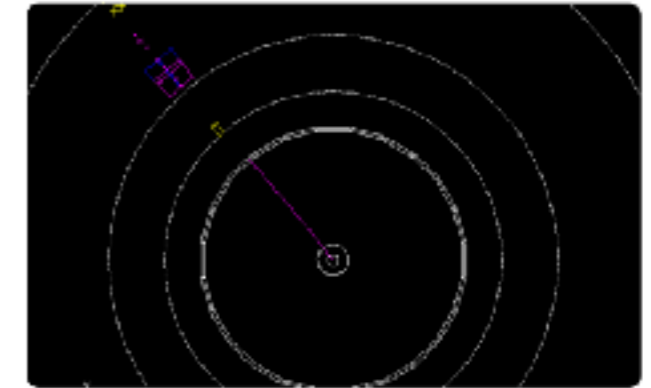


10 Termine im Wintersemester 25/26, mittwochs 19-18:  
19.11., 26.11., 3.12., 10.12., 17.12., 7.1., 14.1., 21.1., 28.1., 4.2.  
Emmy Noether Campus ENC-D-114, 57072 Siegen  
Kontakt: alexander.lenz@uni-siegen.de  
Weitere Informationen unter:  
<https://tp1.physik.uni-siegen.de/mittwochsakademie/>



### English Edition of "Fascinating Particle Physics" published

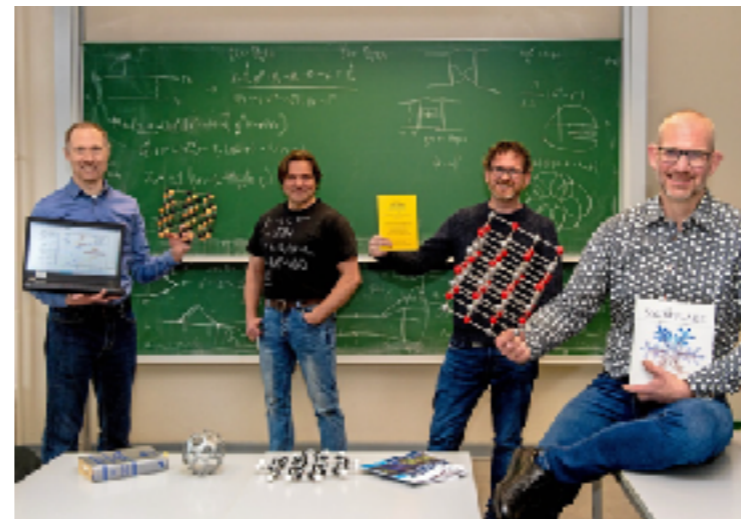
December 2, 2025



© CERN OPAL Masterclass

### Machine Learning Masterclass. Bonn

September 24, 2025



«Was machen Wissenschaftler:innen am liebsten? Forschen! Und am zweitliebsten? Über die Forschung berichten!»



Rent a Prof

Die Uni kommt ins Klassenzimmer



### Netzwerk Teilchenwelt Masterclasses. Bonn, Dortmund, Siegen

September 24, 2025



# 19.-23.10. Schülerakademie



Science College Overbach

## Veranstalter und Träger:

Exzellenzcluster  
Color-meets-Flavor

## Sprecher:

Prof. Dr. Jochen Dingfelder  
Physikalisches Institut  
Universität Bonn  
Käthe-Kümmel-Straße 1, D-53115 Bonn

Universitäten Bonn, Siegen und Dortmund,  
Forschungszentrum Jülich und Science College  
Overbach

Veranstaltungsort: Science College  
Overbach, 52428 Jülich-Barmen,

<http://www.overbach.de/>

## Anmeldung & weitere Informationen

[https://color-meets-flavor.de/  
Outreach/schuelerakademie/](https://color-meets-flavor.de/Outreach/schuelerakademie/)

Anmeldeschluss:  
01. August 2026

## Leitung:

Prof. Dr. C. Hanhart  
Forschungszentrum Jülich  
c.hanhart@fz-juelich.de

Prof. Dr. A. Lenz  
Universität Siegen  
Alexander.Lenz@uni-siegen.de



## 6. Schülerakademie (11.-14.10.2022)

### Teilchenphysik

Science College Overbach  
Jülich Barmen

- Woher kommt die Masse der Elementarteilchen und der Atom-Kerne?
- Welche Formen der Materie gibt es (oder könnte es geben)?
- Wo sind die Grenzen unseres Wissens
- Woher wissen wir, was wir wissen?

Gefördert durch 



Mit der Entdeckung des Higgs-Bosons ist das Standard-Modell der Teilchenphysik komplett und in vielen Bereichen erfolgreich getestet, doch gibt es noch immer viele offene Fragen mit denen sich die moderne Kern- und Teilchenphysik konfrontiert sieht. In der Akademie wird der aktuelle Wissensstand sowie einige zentrale Forschungsgegenstände dieser spannenden Grundlagenforschung vorgestellt, diskutiert und in Projekten vertieft.

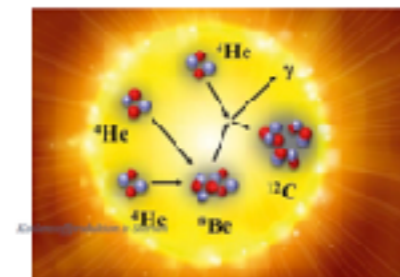
## Schools

### Wir bieten

- Aktuelle Themen der Kern- und Teilchenphysik
- Schülerprojekte in Gruppen zu aktuellen Forschungsfragen
- Exkursion zum Forschungszentrum Jülich
- Einblicke in eine internationale Forschungslandschaft
- Meinungs- und Erfahrungsaustausch

### Teilnehmerbeitrag

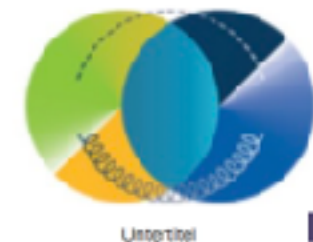
Kurs, Übernachtung und Vollverpflegung gebührenfrei



Projektarbeit bei der Schülerakademie 2017

### Wer ist eingeladen?

Schüler und Schülerinnen der Jahrgangsstufen 10-13, die daran interessiert sind mit wissenschaftlichen Methoden die grundlegenden Eigenschaften der Natur zu ergründen



## Projekte (zur Auswahl - Bearbeitung in Gruppen):

### 1) Numerische Simulationen

Ihr programmiert selber eine numerische Simulation für ein physikalisches System – die Bewegung eines Planeten um die Sonne. Damit könnt ihr zum Beispiel studieren, wie sich eine Änderung des Newtonschen Kraftgesetzes auf die Planetenbahn auswirkt (Stichwort: Periheldrehung des Merkur).

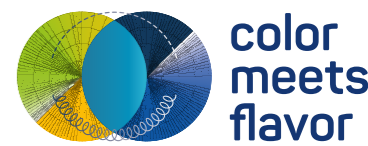
### 2) Einführung in das Quantencomputing

Ihr lernt einfache Quantenschaltungen kennen und könnt diese an einem Quantensimulator ausprobieren und am Ende könnte Ihr sogar ein Quanten-Bit teleportieren!

### 3) Einführung Was bedeutet „wissenschaftlich“?

Ihr diskutiert am Beispiel des anthropischen Prinzips, unter welchen Voraussetzungen Fragestellungen als wissenschaftlich zu betrachten sind.

# 19.-23.10. Schülerakademie



## Schools

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Montag, 19.10.

09:00 Anreise  
10:00 Begrüßung  
10:15 ATLAS Master Class I  
12:00 Mittagessen  
13:00 Einführung in die Numerik (Deborah Rönchen)  
14:00 ATLAS Master Class II  
18:00 Abendessen

---

Dienstag, 20.10.

08:00 Frühstück  
09:00 Die Starke Wechselwirkung (Christoph Hanhart)  
10:00 Experimente zur Flavor-Physik (Dominik Mitzel)  
11:00 wird noch festgelegt (schwache WW?)  
12:00 Mittagessen  
13:30 Exkursion ins Forschungszentrum Jülich:  
Transfer mit dem Bus des Forschungszentrums  
unter Anderem: Besichtigung der Großrechner  
(Stefan Krieg)  
17:00 Vorstellung der Projekt-Themen  
(Christoph Hanhart/Alexander Lenz)  
18:00 Abendessen

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Mittwoch, 21.10.

08:00 Frühstück  
09:00 Leben auf der Erde: Ein Zufall? (Andreas Wirzba)  
10:00 Demonstrations-Experimente (Herbi Dreiner und Team)  
11:00 Quantum Computing (Alexander Lenz)  
12:00 Mittagessen  
13:30 Projekte I (Christoph Hanhart, Alexander Lenz, et al.)  
18:00 Abendessen

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Donnerstag, 22.10.

08:00 Frühstück  
09:00 Projekte II, incl. Kurzvorträge  
(Christoph Hanhart, Alexander Lenz, et al.)  
12:00 Mittagessen  
13:00 Ende der Veranstaltung

---

# Color meets Flavor



Master and PhD students



## Excursion to Forschungszentrum Jülich

Also on 9th February 2026

June 27, 2023



## First Color Meets Flavor PhD School

A Color edition is planned for 2028

March 18, 2024

### DESY Training on Experimental Concepts & Techniques

DTECT (DESY Training on Experimental Concepts & Techniques) is an annual instrumentation school at DESY in Hamburg, one of the world's leading research centers in particle physics, photon science, and accelerator technology.

Designed for PhD students and early-career researchers, DTECT offers a unique opportunity to explore a wide range of experimental techniques and cutting-edge detector technologies relevant for particle physics and beyond in a hands-on, immersive environment.

Over two weeks, participants will experience a mix of lectures and practical labs, taking part in activities in the clean room, operating detectors at the DESY test beam facility, building their own particle detector, and exploring detector systems and material properties.

DTECT provides a platform for developing a broad and interdisciplinary understanding of detector technologies and their applications in major international experiments, setting the stage for the next generation of instrumentation physicists.

Beyond the technical training, DTECT aims to bring together students from around the world, fostering networking, collaboration, and the exchange of ideas in experimental physics and technological innovation.

#### Organizing Committee:

Massimiliano Antonello, Naomi Davis, Silvia Danetti, Ingrid Maria Gregor, Moritz Guthoff, Lennart Huth, Finn Kling, Katja Kueper, Juan Luis Martínez, Ilan Meza, Konstantinos Nikolakoussos, Felix Seifert, Elizaveta Shtukova, Simon Spaargel, Marcel Stanitzki, Anastasia Velyka, Gianpiero Vignola



CLUSTER OF EXCELLENCE  
QUANTUM UNIVERSE



## 55th Autumn School on High- Energy Physics

September 13, 2024

# Color meets Flavor



## Summer Semester 2025

### Bonn

Theoretical Physics  
**High performance computing: Modern computer architectures and applications in the physical science**  
Prof. Dr. Stefan Frickhoff/Kraig-Steinhilber  
Dr. Bartosz Kostrowski

Lecture:  
Monday, 10:00-11:00

The lecture starts on April 14, 2025. Please write to the lecturers if you would like to participate via Zoom from Dortmund or Siegen.

[Module Description \(PDF\)](#)

## Master and PhD students

## Winter Semester 2025/26

### Bonn

Theoretical Physics  
**Theoretical Hadron Physics**  
Prof. Dr. Christoph Hanhart  
Dr. Andreas Nogga

Lecture:  
Wednesday, 13:00-16:00

The lecture starts on October 15, 2025. Please write to the lecturers if you would like to participate via Zoom from Dortmund or Siegen.

[Module Description \(PDF\)](#)

Experimental Physics  
**Accelerator Physics**  
Prof. Dr. Sebastian Neubert

Lecture:  
Tuesday, 10:15-11:45  
Thursday, 10:15-11:45

The lecture starts on October 14, 2025. Please write to the lecturer if you would like to participate via Zoom from Dortmund or Siegen.

[Module Description \(PDF\)](#)

Experimental Physics  
**Physics of Particle Detectors**  
Prof. Dr. Jochen Dingfelder

Lecture:  
Tuesday, 12:15-14:00  
Thursday, 14:15-16:00

The lecture starts on October 14, 2025. Please write to the lecturer if you would like to participate via Zoom from Dortmund or Siegen.

[Module Description \(PDF\)](#)

### Siegen

Theoretical Physics  
**Introduction to Lattice Field Theory**  
Dr. Oliver Wittel

Lectures:  
Thursday, 10:15-11:45  
Friday, 10:15-11:45  
(alternating between lecture and tutorial)

The lecture starts on October 23, 2025. Please write to the lecturer if you would like to participate via Zoom from Bonn or Dortmund.

[Announcement \(PDF\)](#)

Theoretical Physics  
**QCD Sum Rules for Flavor Physics**  
Prof. Dr. Alexander Knochjashvili

Block course of lectures taking place in Siegen from February 2 to 17, 2026, 10:15-11:45. Please write to the lecturer if you would like to participate via Zoom from Bonn or Dortmund.

[Announcement \(PDF\)](#)

# Research Academy

- .. we will install a central structural instrument: the Research Academy. In addition, we will create a High-Potentials Program to boost ..
- BSc:
  - we offer our undergraduate students customized summer projects within CmF groups after their second BSc year. .
  - In addition, three selected BSc students per year will be offered funding from CmF to write their BSc theses at CERN, on projects that are co-supervised by local experts.
- MSc:
  - **Joint MSc program:** The curricula of the MSc programs in physics at the three universities are similar and include a significant fraction of elective courses. We will coordinate our teaching activities to create a joint MSc program, allowing students to choose from all the courses offered and to get the credits acknowledged at their university. By offering video broadcasts of the courses, the range of possible specializations can significantly be expanded compared to the MSc courses offered locally.
  - **MSc scholarships:** Each year, 20 competitive MSc scholarships will be awarded to the most promising (local, national, and international) BSc graduates. If supported students perform their MSc thesis research in CmF groups, these scholarships can be used for one of the three local physics degree programs or for the Erasmus Mundus International Master of Advanced Methods in Particle Physics (IMAPP), led by TUDo.

# Doctoral researchers

- **Fast-track doctorate:** CmF offers an excellence fast-track doctoral program with competitive admission for students directly from the BSc. The students will be closely supervised and guided so that the MSc credits and the MSc degree can be obtained in parallel to the doctoral project work, thus significantly shortening the duration of a doctorate for outstanding students.
- **CmF lecture program:** In-depth lectures will be offered on specific CmF topics and made accessible to all cluster sites, e.g. as block courses or video streams. The topical lecture program in particle physics is complemented by interdisciplinary courses from other departments such as computer science or mathematics. As an example the course “Computer Science meets Physics” is being developed jointly with computer scientists in CmF (*Teubner* and *Chen (Lamarr)*) for students from both fields. They will first obtain a training in computer science principles and will then apply this knowledge to physics problems from the IAL. A pilot course has already been successfully given in the doctoral school “Color meets Flavor” in Bad Honnef (03/2024).
- **Cross-disciplinary secondments:** All doctoral researchers are supposed to do a two-month secondment involving a project in experiment, theory, or industry beyond the fields of their theses. Industry secondments will be organized by the Industry Hub (cf. Section 5.5).
- **Joint doctoral supervision:** The thesis advisor will be supported by two additional CmF scientists, preferentially from the other cluster sites, serving as co-supervisors. Attention will be paid to the composition of the supervision team, reflecting the idea of cross-disciplinarity and allowing the ECRs to establish their own research networks.
- **Internationalization:** CmF is based on an excellent international network that originates in the hadron-physics and high-energy & flavor physics communities. All researchers will be hired internationally, where the large experiments are an ideal source to recruit the best candidates worldwide. For doctoral researchers, CmF will provide sponsoring for extended research stays abroad and also encourage international secondments.

# Postdoctoral researchers

**Postdoctoral researchers** will be hired by default on three-year positions. They will be supported by the following measures:

- Each postdoctoral researcher is supported by a **mentoring team** of two experienced researchers from different CmF institutions. The mentoring will be systematically reviewed and dynamically developed (cf. Section 5.4)

The Research Academy offers an extensive **non-academic training program** that complements the specific training on CmF topics. We will provide a rich program of courses on topics like equity and diversity, sustainability, and entrepreneurship, which will be jointly organized by the respective **boards** and committees. Additionally, courses on topics like scientific writing, good scientific practice, didactics in university teaching, mental health, management, and leadership are offered, organized together **ment** with the corresponding centers at the cluster sites and extended by inviting external speakers.

- All postdoctoral researchers will receive **training on leadership, management, and communication** supported by the **Research Academy Leadership Fund** (see below)
- In order to gain leadership experience and visibility, advanced postdoctoral researchers will be encouraged to take on **coordination roles in project-related cross-functional research teams**.
- Didactic skills and teaching experience are essential requirements for academic careers, and also in industry. Hence **guided teaching opportunities** will be offered to postdoctoral researchers, including co-teaching with experienced colleagues, assisted by specific training lectures.

# Research Academy

The Research Academy offers an extensive [non-academic training program](#) that complements the specific training on CmF topics. We will provide a rich program of courses on topics like equity and diversity, sustainability, and entrepreneurship, which will be jointly organized by the respective committees. Additionally, courses on topics like scientific writing, good scientific practice, didactics in university teaching, mental health, management, and leadership are offered, organized together with the corresponding centers at the cluster sites and extended by inviting external speakers.

Postdoctoral researchers can apply for significant excellence funding from the [Career Development Fund](#). Beside providing funding for professional training courses, the Career Development Fund is primarily set up to finance measures (e.g. supporting personnel) that will help promising postdoctoral researchers to successfully acquire third-party funding at the level of high-class grants, e.g. for an independent research group (DFG Emmy-Noether or ERC Grants). The application process within CmF will be very competitive in order to select the most promising candidates. The funding decision is taken by the Cluster Board based on scientific excellence and impact on CmF. Furthermore, an annual [CmF Research Prize](#) of 50 k€ to enable independent research will be awarded for the most outstanding contribution of a postdoctoral researcher in CmF.

## FINANCES – RUNNING BUDGET

Direct Project Costs	Before cuts k€	After cuts k€	After/before	Comments
IHL budget (120 k€/year)	780	780	100%	
IAL budget (25 k€/year)	163	163	100%	
CmF Forum budget (250 k€/year)	1625	813	50%	250 → 125 kEUR/year
Research Academy budget (50 k€/year)	325	163	50%	50 → 25 kEUR/year
Outreach fund (100 k€/year)	650	325	50%	100 → 50 kEUR/year
Equal opportunity fund (200 k€/year)	1300	650	50%	200 → 100 kEUR/year
Projet seed fund (250 k€/year)	1625	813	50%	250 → 125 kEUR/year
Career development fund (250 k€/year)	1625	813	50%	250 → 125 kEUR/year
Mobility fund (50 k€/year)	325	163	50%	50 → 25 kEUR/year
Travel budget (ca. 3 k€/year per CmF-funded person)	1170	585	50%	
MSc scholarships (10 + 10 IMAP per year)	1560	780	50%	20 → 10
Other	378	189	50%	
<b>TOTAL</b>	<b>11526</b>	<b>6234</b>	<b>54%</b>	