

# 744. Heraeus seminar "Towards Storage Ring Electric Dipole Moment Measurements"

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RWTH Aachen & FZ Jülich



Bad Honnef, March 2021

# Physikzentrum Bad Honnef



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## Bad Honnef and surroundings: **Upstream**



## Bad Honnef and surroundings: **Downstream**



# Why this workshop?

Previous workshop 2011:

485. WE-Heraeus-Seminar:

“Search for Electric Dipole Moments (EDMs) at Storage Rings”



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“Search for Electric Dipole Moments (EDMs) at Storage Rings”

Since then:

- JEDI (since 2011): activities mainly at COSY, Forschungszentrum Jülich, ERC Grant srEDM, 2016-2021(2022)  
many milestones: spin coherence time, spin tune measurement, spin manipulation, polarimetry, .....
- In framework of Physics beyond collider (PBC) initiative, new collaboration CPEDM (since 2017, CERN, JEDI members, ...) established



## Why this workshop?

Previous workshop 2011:

485. WE-Heraeus-Seminar:

“Search for Electric Dipole

Rings”

**Storage ring to search for electric dipole moments of charged particles**

Feasibility study

...ungszentrum Jülich,

...e, spin tune measurement, spin

CPEDM Collaboration

- ... physics beyond collider (PBC) initiative, ... CPEDM (since 2017, CERN, JEDI members, ...) established
- CERN yellow report (almost) published with 260 pages

## Why this workshop?

- new ideas: dedicated muon EDM measurement in storage ring, direct electron EDM
- new observables: axion (like particles), effects of general relativity
- Possibility for a ERC design study in 2022
- EDM: “essential scientific activity” (European Strategy for Particle Physics 2020)  
<http://cds.cern.ch/record/2721370/files/CERN-ESU-015-2020>



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<http://cds.cern.ch/record/2721117>



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Enough reasons to have another workshop  
which will hopefully trigger follow up meetings leading to a dedicated storage ring  
for charged particle EDM

# Organization of the workshop

- **Theory**

symmetries (breaking), EDMs, new observables: axion (like particles), effects of general relativity

- **experimental results**

neutron, muon, deuteron, . . . , axion searches

- **steps towards the design of a dedicated storage ring**

achievements at COSY, ring design, beam instrumentation, spin manipulation, simulations, polarimetry, muon EDM, electrostatic storage ring . . .

# Agenda

Monday	Tuesday	Wednesday
10:00 Pretz		
10:05 Lenisa	10:00 Gooding	10:00 Wagner
10:35 Carli	10:30 Abusaif	10:30 Poncza
11:35 Talman	11:00 Slim	11:00 Lehrach
12:05 Semertzidis	12:00 Borburgh	12:00 Laszlo
	12:30 Soltner	12:30 Porshnev
13:50 Pretz		
14:05 Jorda	14:00 Kirch	14:00 Silenko
14:20 Gardner	14:45 Shmakova	14:30 Lamont
15:15 Nikolaev	15:15 Karanth	15:00 <i>Discussion &amp; Closing</i>
16:00 Timmermanns	15:45 Chislett	
	16:45 Wronska	
17:15 Gupta	17:15 Schmidt-Wellenburg	
18:00 Graham	17:45 Grieser	
18:45 Uzikov		

# Meetanyway

WILHELM UND ELSE  
HERAEUS-STIFTUNG



744. WE-Heraeus-Seminar: Towards Storage Ring Electric Dipole Moment Measurements

Mon. 29 - Wed. 31. March 2021

Foyer

Auditorium

Networking

## Zoom Auditorium

Enter this auditorium to listen to the talks or give your presentation



zoom

Mache

Main Auditorium

# Meetanyway

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Detailed program

OPEN

## Info Desk

Join a table to talk to someone from the organisational team



## Zoom Test Room

As speaker, please feel free to test your Zoom connection/features here



Foyer

Info Desk

Zoom Test Room

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## Private Tables

Meet colleagues for private communications (max. 4 people per table)



## Networking

Open Tables

Private Tables

Note, if you join the tables,  
you automatically leave the auditorium  
but **not** the ZOOM conference in the auditorium

## ZOOM Link

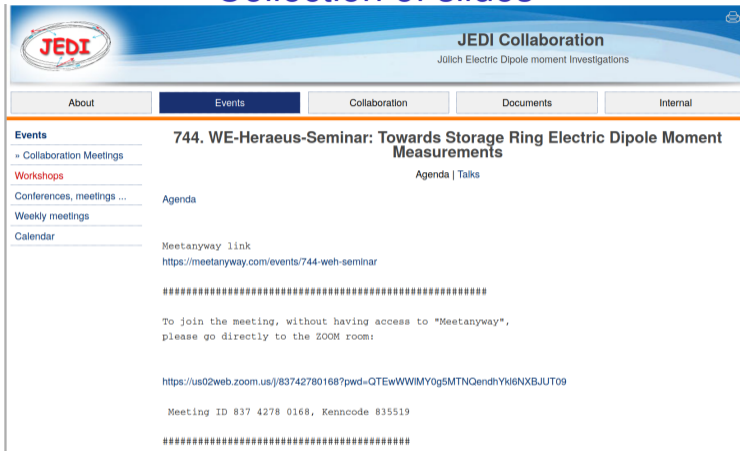
In case you are facing problems with connecting to Meetanyway, use the direct ZOOM Link to the Auditorium

<https://us02web.zoom.us/j/83742780168?pwd=QTEwWWIMY0g5MTNQendhYkl6NXBJUT09>  
Meeting ID 837 4278 0168, Kenncode 835519

Feel free to distribute this link to colleagues who are interested to listen to the talks.



# Collection of slides



The screenshot shows the JEDI Collaboration website. The header includes the JEDI logo and the text 'JEDI Collaboration' and 'Jülich Electric Dipole moment Investigations'. A navigation bar contains links for 'About', 'Events', 'Collaboration', 'Documents', and 'Internal'. The 'Events' page is active, displaying a sidebar with links to 'Collaboration Meetings', 'Workshops', 'Conferences, meetings ...', 'Weekly meetings', and 'Calendar'. The main content area features the event title '744. WE-Heraeus-Seminar: Towards Storage Ring Electric Dipole Moment Measurements' and a sub-header 'Agenda | Talks'. Below this, there is an 'Agenda' section with a 'Meetanyway link' and a URL: <https://meetanyway.com/events/744-weh-seminar>. A separator line of asterisks follows. The text then states: 'To join the meeting, without having access to "Meetanyway", please go directly to the ZOOM room:'. Below this is another URL: <https://us02web.zoom.us/j/83742780168?pwd=QTEwWWlMY0g5MTNQendhYk6NXBJUT09>. The meeting ID '837 4278 0168, Kenncode 835519' is provided, followed by another separator line of asterisks.

- JEDI members, please upload talks
- others: send pdf to [a.wirzba@fz-juelich.de](mailto:a.wirzba@fz-juelich.de) or [pretz@physik.rwth-aachen.de](mailto:pretz@physik.rwth-aachen.de)

# Heraeus Foundation

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