

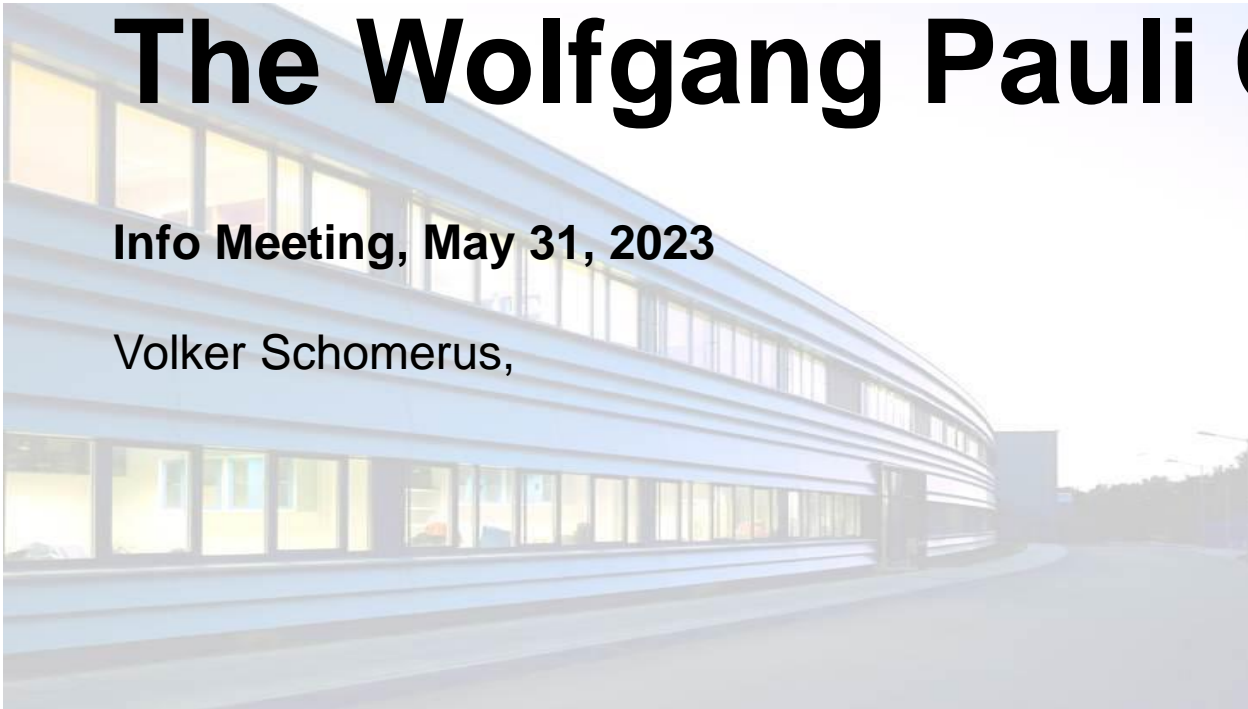


Eine Partnerschaft der  
Universität Hamburg und DESY

# The Wolfgang Pauli Centre

Info Meeting, May 31, 2023

Volker Schomerus,



# Wolfgang Pauli Centre – the beginning

After inauguration in 2014 WPC ran two events:

- WPC blackboard seminar
- WPC lecture

Two **DSF initiatives** provided support for: 2016-18, 18-20

- WPC colloquia
- WPC theory workshop
- Focused thematic workshops

As of 2018...

## Hamburg Prize for Theoretical Physics

Jointly with Joachim Hertz Foundation the WPC awards

137.036 € annually to an outstanding theoretical physicist.

+ funding for annual WPC symposium



# **The WPC Strategy Process**

**2018-2020**

# The Wolfgang Pauli Centre for Theoretical Physics – The White Paper

Wolfgang Pauli Centre  
Strategy Paper  
Hamburg, February 2020

**Exploit enormous local potential to forge an international center for Theoretical Physics which maintains unique links to experiments**

## Authors of the WPC White Paper:

Christophe Grojean, Carmen Herrmann, Karl Jansen, Robin Santra, Volker Schomerus, Guenter Sigl, Michael Thorwart;  
Kelly Beernaert, Moritz Habermehl.

## Evaluation in Spring 2020 by:

Gian Guidice, Robert Myers, Shaul Mukhamel, Hitoshi Murayama, Peter Zoller.

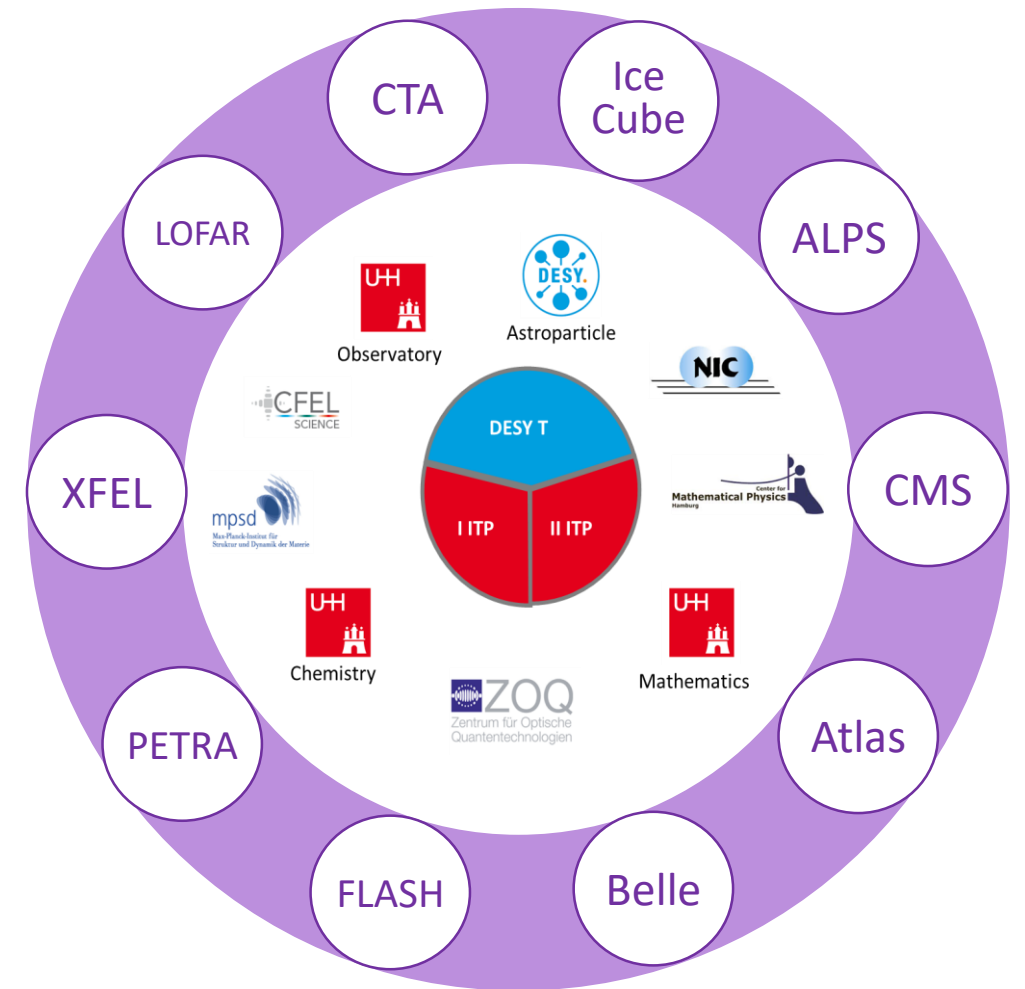
# Mission of the Wolfgang Pauli Centre

It is the mission of the Wolfgang Pauli Centre to be a leading centre for theoretical physics that pursues and promotes interdisciplinary research to address the fundamental challenges in our understanding of matter, materials and the universe under one organisational roof.

Profiting from its unique embedding in a large-scale research center, the Wolfgang Pauli Centre fosters international cooperation as well as a vivid dialogue between theory and experiment. With its novel setup it serves as a hub for scientific exchange between all partners and for educating and training the next generation.

As a lighthouse for theoretical physics in Science City Bahrenfeld it also seeks dialogue with society in the region and beyond.

*Overcome fragmentation of TP while maintaining links to experiments*



# WPC-Scientific Pillars

The six existing research areas of the WPC  
**Will be restructured into**  
five interdisciplinary scientific pillars

- Non-equilibrium Physics
- Fabric of the Universe
- Analytic Methods

CLUSTER OF EXCELLENCE  
CUI: ADVANCED  
IMAGING OF MATTER

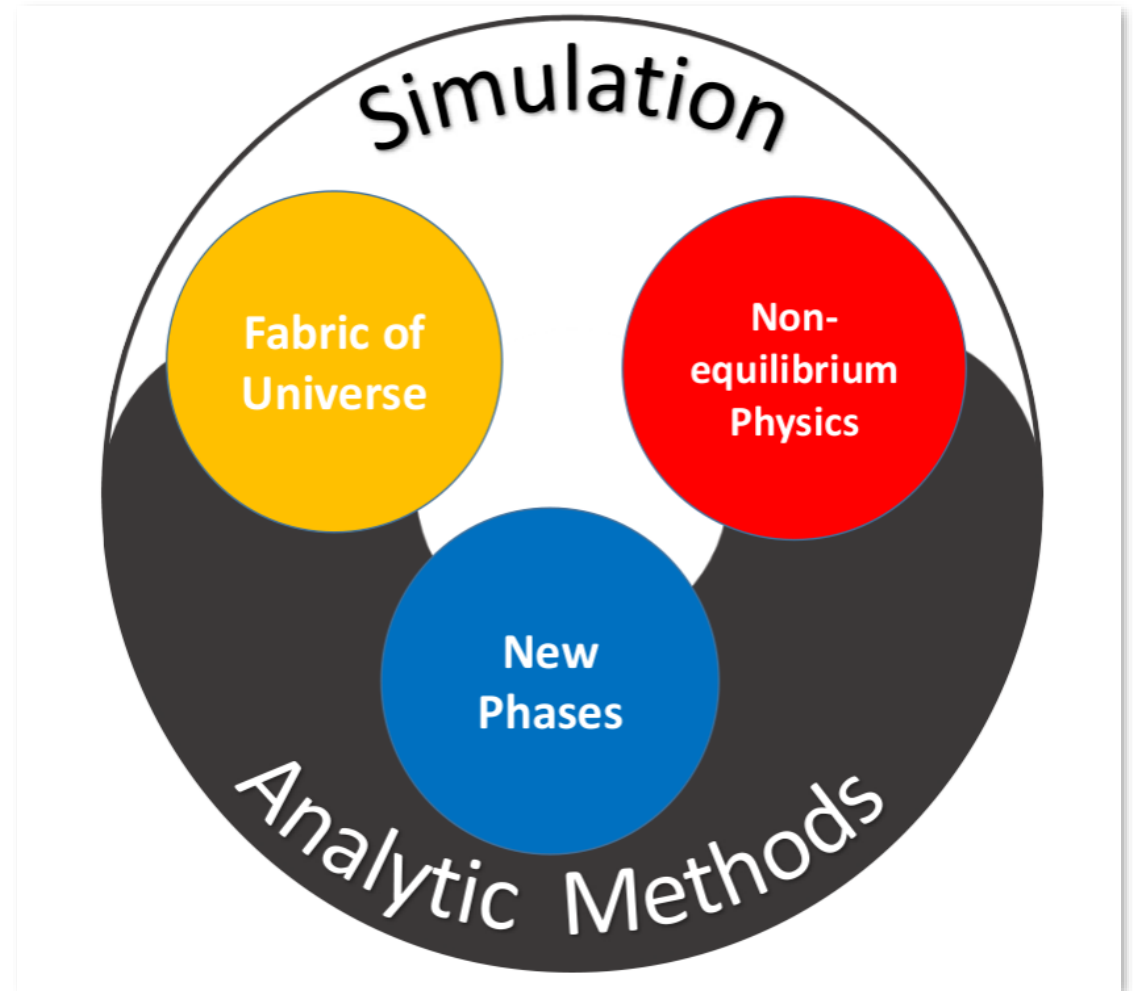
CLUSTER OF EXCELLENCE  
QUANTUM UNIVERSE



*Overarching pillars:*

- New Phases and Phase Transitions
- Simulation and Numerical Methods

*Description in strategy paper: initial conditions*





# The WPC Building

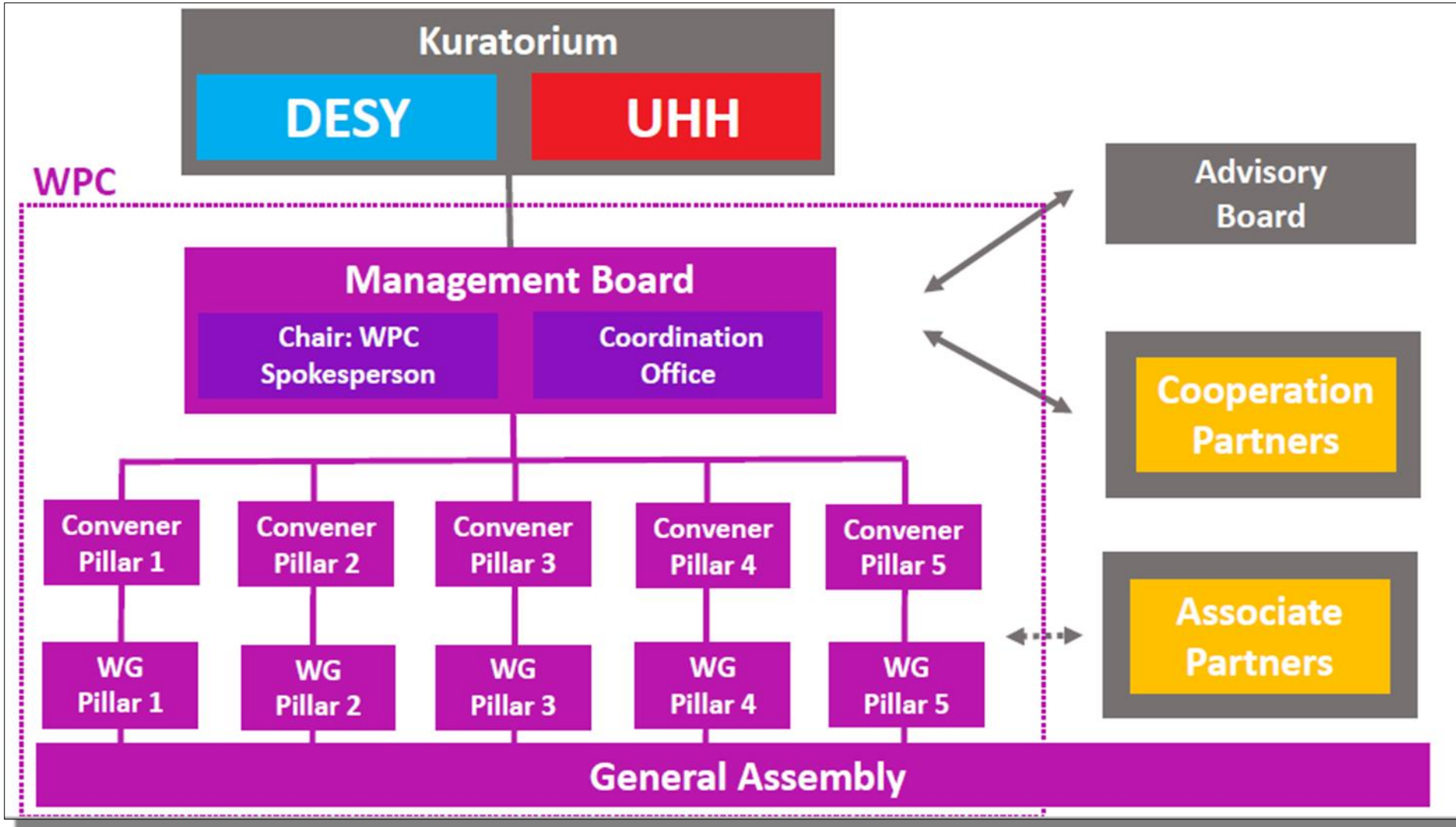
## Key purposes:

- Unite all HEP-theory from both DESY and UHH under one roof.
- Host cross-disciplinary thematic Institutes in WPC **Visitor Center**
- Provide office space for 8 YIGs in in a **Research Hostel**



Part of DESY Strategy 2030

# The Governance Model





# Review of the White Paper

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Theoretical physics is in a transition period, in which goals are redefined and new tools and ideas are emerging. [...]. More than ever, theoretical physics needs exchange of ideas across boundaries of traditional disciplines. [...]

The WPC has the vision to realise in practice this new approach to theoretical physics. I truly believe that our community must follow this direction and WPC will have a pioneering role. While many scientists talk about interdisciplinary, there is no institution in Europe that succeeds in fulfilling this role. The Perimeter Institute in Canada is inspired by similar concepts to those the WPC wants to achieve, and indeed the Perimeter has been very successful. The WPC will be completely unique in Europe, and will be an example for a new vision of theoretical physics, not only for Germany, but for the world. The WPC has the potential to make Hamburg the capital of Europe for this modern vision of theoretical physics.

**From review of first draft of WPC strategy paper by Gian Guidice**

# Implementation

first steps 2020 ...

# The WPC Cooperation Contract (Rahmenvertrag)

**Vereinbarung**  
**zum**  
**Wolfgang Pauli Centre (WPC)**

**in Hamburg**

**zwischen dem**

**Deutschen Elektronen-Synchrotron DESY**

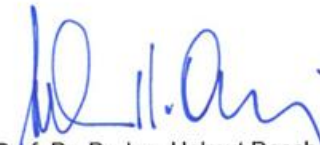
vertreten durch das Direktorium  
Notkestraße 85, 22607 Hamburg

**und der**

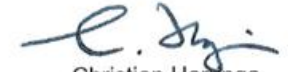
**Universität Hamburg**

vertreten durch den Präsidenten  
Mittelweg 177, 20148 Hamburg

Deutsches Elektronen-Synchrotron DESY



Prof. Dr. Dr. h.c. Helmut Dosch  
Vorsitzender des Direktoriums



Christian Harninga  
Administrativer Direktor

Hamburg, den 11.02.2022

Universität Hamburg



Prof. Dr. Dr. h.c. Dieter Lenzen  
Präsident



Dr. Martin Hecht  
Kanzler

**Cooperation contract for WPC between  
DESY & UHH was signed on Feb 11, 2022**

# Spokespersons & Coordination Office

## Spokespersons *tbc by PIER commission*



**Volker Schomerus**  
DESY T



**Michael Thorwart**  
I. Inst f. TP, UHH

## Coordination office *since Dec 1*



**Nafiseh Sajjadi**  
scientific coord.



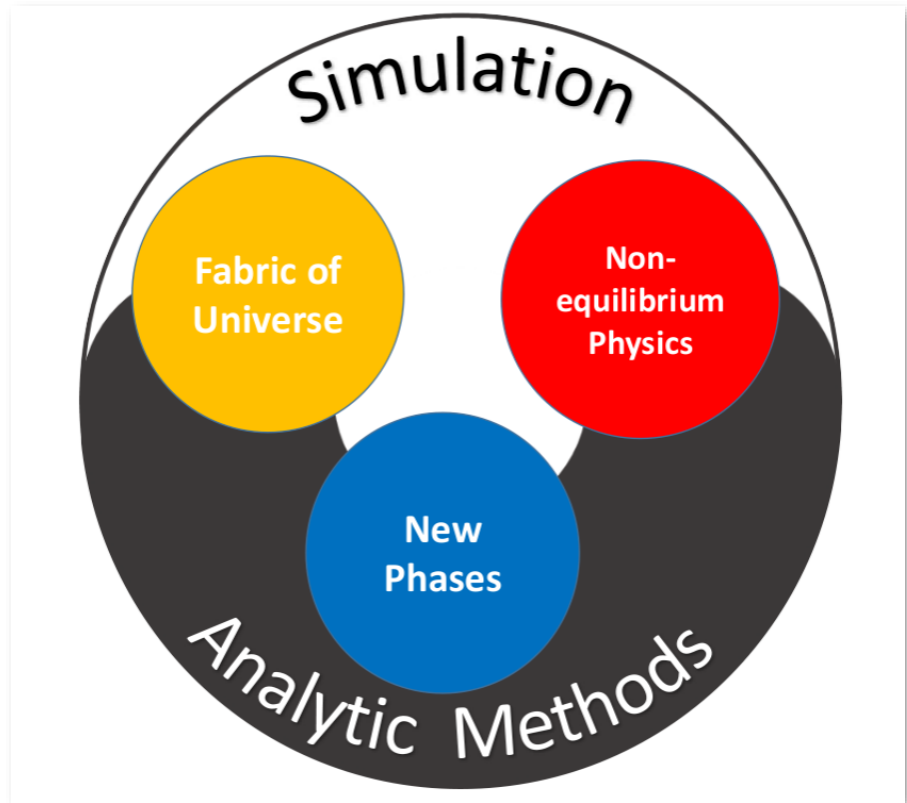
**Jan-Hendrik Arling**  
Infrastructure

# Discussion

*material from Spokespersons*

# Discussion: *Management Board*

Composition: 2 Spokespersons + 1 convener for each of the 5 scientific pillars.



*Following scientists have indicated that they would be willing to join board:*

- **Non-equilibrium Physics**  
*Robin Santra*
- **Fabric of the Universe**  
*Christophe Grojean*
- **Analytic Methods**  
*Joerg Teschner*
- **New Phases and Phase Transitions**
- **Simulation and Numerical Methods**  
*Nina Rohringer*



# Discussion: *Scientific events*

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WPC colloquium/blackboard Seminar:

*Suggestion: 5 times per year on Wednesday 2:30 pm as hybrid*

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WPC days/workshops:

e.g. Topological States of Matter

Quantum Information

Plasmas from Lab to Cosmos

Fundamental Physics and Material Science

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WPC Symposium/HHPTP:

**Next Symposium on Nov 8-10**

**Award winner to be announced on June 29**



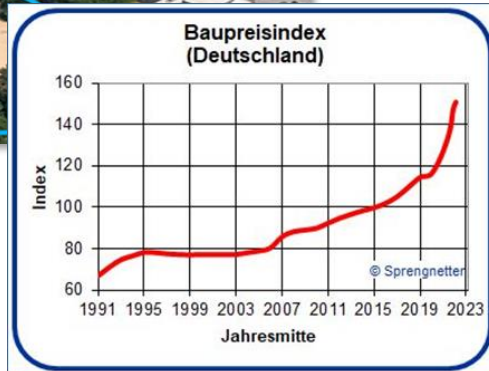
# **Backup Material**

# WPC building

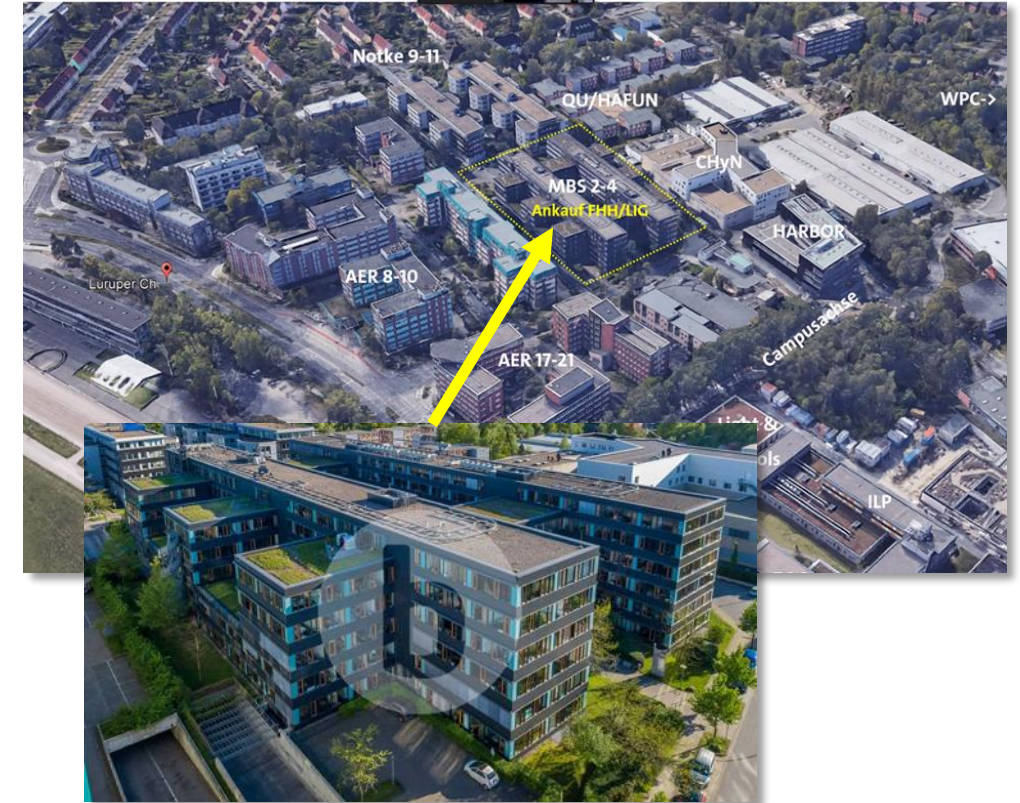
## Time line

### § 7 Standort

Das DESY wird auf dem DESY Campus in Hamburg Bahrenfeld das WPC errichten und der UHH zur gemeinsamen Nutzung überlassen. Die Vertragspartner werden gemeinsam die Spezifikationen für das zu errichtende WPC-Gebäude festlegen. Die genauen Einzelheiten über die Bedingungen der Nutzung des Gebäudes legen die Vertragspartner in einem noch zu spezifizierenden Nutzungsvertrag (siehe §10 a)) fest.



**DESY, UHH and BWFGB  
remain fully committed; looking for a solution.**



**On Dec 31, HH bought “double-H building”  
just outside DESY campus.**

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Volker Schomerus  
DESY T



Michael Thorwart  
I. Inst f. TP, UHH

## Coordination office *since Dec 1*



Nafiseh Sajjadi  
scientific coord.



Jan-Hendrik Arling  
Infrastructure

## Recent developments:

Key WPC Mailing lists assembled  
**reach faculty and all members**

Indico based WPC event calendar  
**1st time across all research areas**

Membership management tool  
**in progress, launch end of June**

WPC logo design commissioned  
**1st proposals are being discussed**

## Next steps:

Management board, bylaws, ....

→ WPC building



# National and International Partners

**National Partners** complement the scientific spectrum:

- Contribution to working groups
- Organisation of scientific programs
- Scientific collaborations

## International Partners

- Share the multidisciplinary approach
- Have a history of collaboration with WPC groups
- Conduct exchange programs for young scientists (PhD and Postdocs)

*First joint WPC postdoc*

*With Weizmann Institute hired in 2020*

**Additional partners can join in the future  
(e.g. Universities or experimental collaborations)**



Eine Partnerschaft der  
Universität Hamburg und DESY

