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Project Sheet

# Gleaming Prototype

Center for Applied Quantum  
Technology ZAQuant, University of  
Stuttgart

#Education #Science



## Project Panel

Clients

Vermögen und Bau Baden-Württemberg,  
Universitätsbauamt Stuttgart und Hohenheim

User

University of Stuttgart, 3rd and 4th Institute of Physics

Effective Area

2982 qm

Floor Area

8564 qm

Floor Volume

46001 cbm

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Completion

2021

Photos

Brigida González & Wolf-Dieter Gericke

After a three-year construction period, the ZAQuant in Stuttgart was opened in October 2021. The research environment of the Center for Applied Quantum Technology is **unique in the world**: nowhere else are research areas so closely interwoven, is there **such a density of high-precision and laser laboratories**, clean rooms and physical, chemical and biochemical laboratories, which are complemented by office and communication areas. 70 employees from 15 working groups are researching **the basics for innovative nanophotonic quantum sensors**. Architecturally, too, the building elegantly **links** the individual areas with each other, while structurally they are **precisely separated** and **shielded** from disturbing external influences.

Isolation, shielding, disruption, decoupling, communication, informal exchange, spontaneous meetings – one might think that these terms represent opposites. At the ZAQuant, however, they are essential prerequisites in their holistic nature, which is necessary for the success of research.

Markus Hammes, architect

The multitude of highly specialised uses made the building task extremely complex. Although prototype buildings exist for partial aspects, **additional inventiveness and individual approaches** were necessary in this project. Together, they provide **a functionally and economically appropriate answer** to the specified requirements.

The experimental heart is always present for the staff.

From: Tief im Innern liegt ein Schatz

» Creating an intriguing design for this experimental wing, which is subject to the most complex functional requirements, was the architects' ambition. **To**

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**this end, they broke open the walls of the two-storey hall with round windows in the upper third.** On the second floor, these portholes visually link the laboratory hall with the offices and meeting zones, which are located behind glass walls all around.«

From: [Tief im Innern liegt ein Schatz, Stuttgarter Zeitung 14.12.2021](#)



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The corridors surrounding the measuring laboratory hall were laid out as a continuous gallery. Large, round windows provide **views into and out of the hall**, enabling orientation in the building and over the course of the day. The generous storey heights allow natural light to reach the depth of the rooms located along the facade.



The portholes allow a view into and through the hall; in return, the users of the measuring cabins can see their colleagues passing by in the corridors.

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On the top floor of the ZAQuant, a roof garden has been laid out that traces the outlines of the measuring laboratory hall below. This outdoor space, which is intended for recreation and informal exchange between users, is also constructed with vibration decoupling.



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The yellow light film protects against contamination caused by daylight. At the same time, the clean room offers a spectacular first insight into the work of the researchers.



Opposite the yellow glass front in the entrance area, a work of art by Christoph Poetsch visualises **motifs from quantum mechanics**: an algorithm generates **random combinations** from the letters of Goethe's poem "Ein gleiches" ("Another"). Verse form and number of characters per line are maintained. There are 10 to the power of 134 variants, each of which is only displayed for the **duration of one breath**.



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Location

Center for Applied Quantum Technology ZAQuant,  
University of Stuttgart

Allmandring 13  
70569 Stuttgart  
Deutschland