Projekt

Do not disturb!

Max Planck Institute for Solid State Research, Precision Laboratory, Stuttgart

#Science

Projekttafel

Auftraggeber	Max Planck Society, Munich

Nutzer	Max Planck Institute for Solid State Research, Stuttgart
Nutzfläche 1–7	1675 qm
Bruttogrundfläche	5251 qm
Bruttorauminhalt	30833 cbm
Fertigstellung	2012
Auszeichnungen	Hugo Häring Auszeichnung 2014 Deutscher Fassadenpreis 2014 Geplant+Ausgeführt 2015
Fotos	Wolf-Dieter Gericke

> If you want to observe matter at atom level, you need an entirely undisturbed environment.

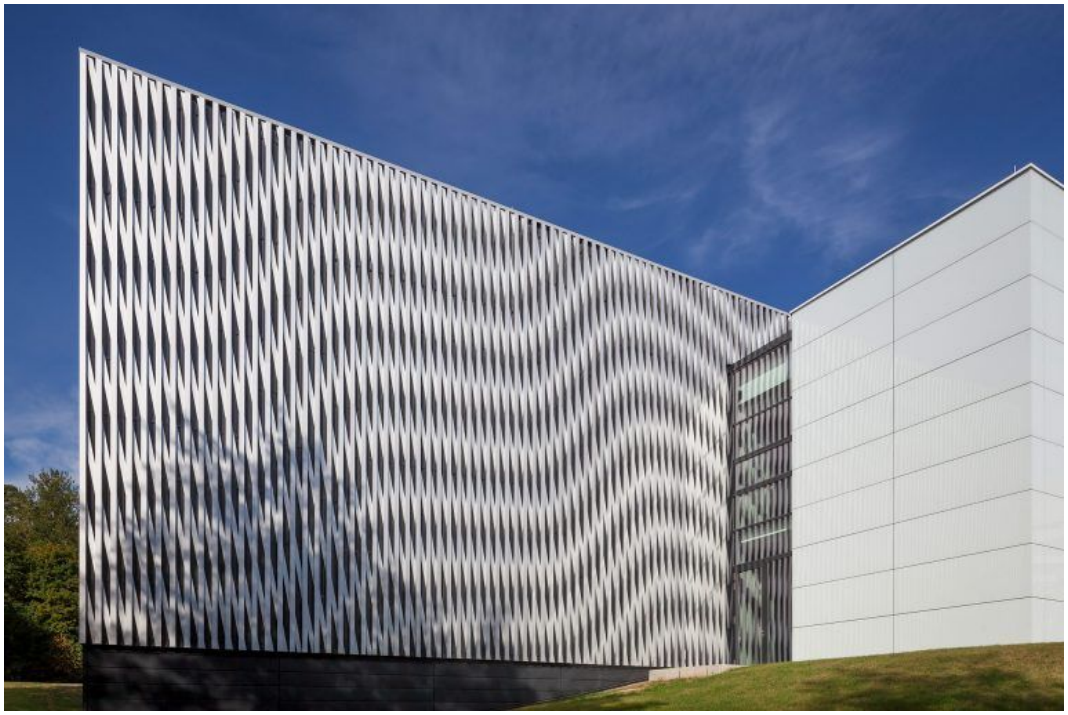
Max Planck Institute Magazine: Quantum Materials – for the Technology of tomorrow

In the precision laboratory at the Max Planck Institute in Stuttgart scientists examine the surfaces of atoms, molecules and artificial quantum structures, creating the basis for future cutting-edge information technology. The most relevant precondition for this work is an environment entirely free of acoustic, electromagnetic and structural-dynamic disturbances. These complex demands required close cooperation with the scientists and engineering specialists. A lab prototype was developed, the only one of its kind, thereby setting a new standard.

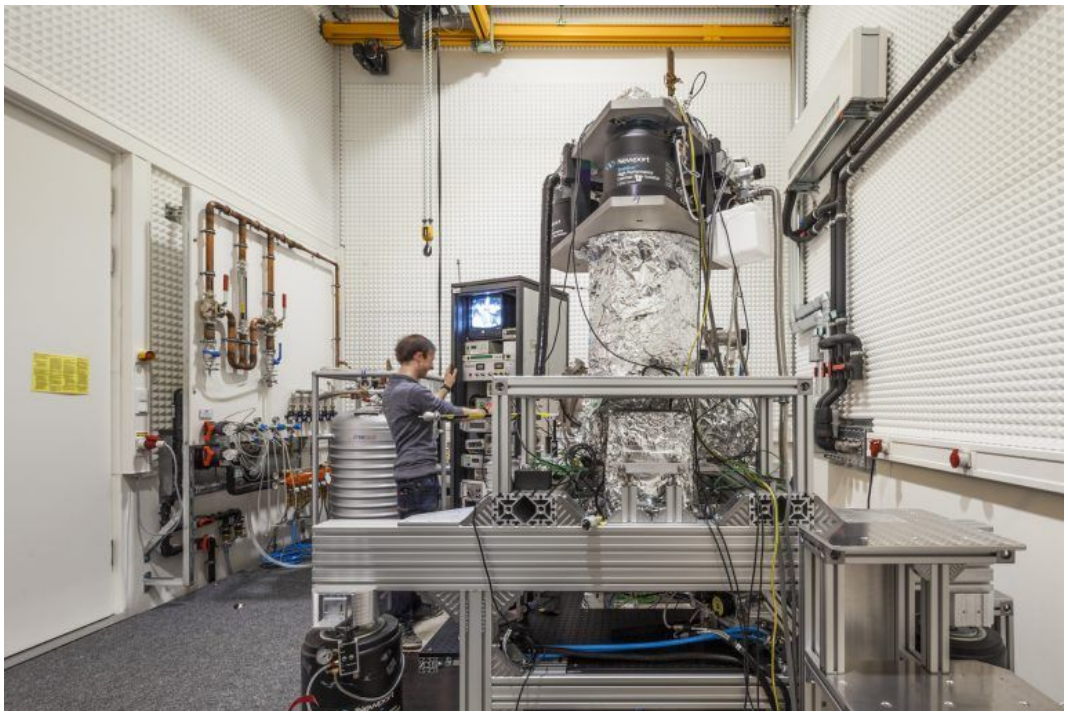
> The interference patterns we used for the façade reflect the internal happenings of the building and stand to our newly gained understanding of the experiments on the fringe of what is achievable technically.
>
> Markus Hammes, Architect

The new building consists of an office and laboratory wing as well as of a 15 m high experiments hall with an attached technical building. The dominant

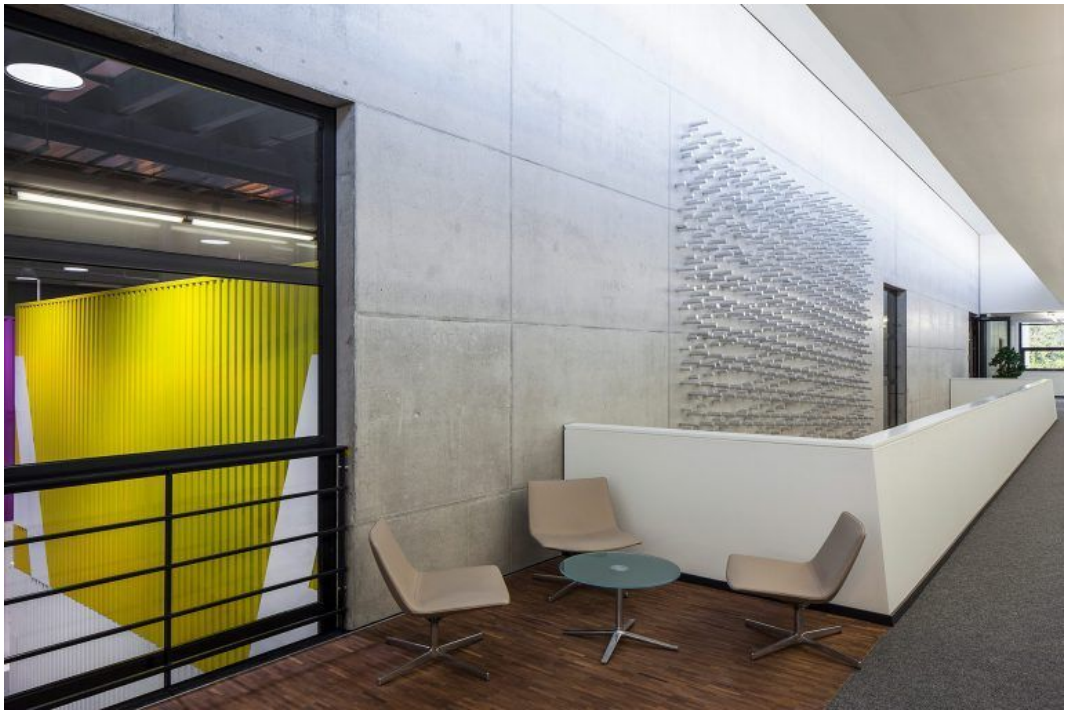
elements in the hall are the eleven coloured experiments boxes, monolithic blocks within the hall volume. Each of these separate laboratories stands on its own solid foundation block, reinforced with non-conductive and non-magnetising glass fibres in order to avoid creep and eddy currents. The planned subatomic precision experiments require a continuous shield against seismic, acoustic and electromagnetic disturbances from outside. The foundations of the experiments, in turn, are around three metres thick and rest on air springs, allowing the experiments to be isolated from the surrounding environmental vibrations.



The hall’s façade is wrapped in a skin of vertical aluminium profiles. They are attached at differing spaces and on two different levels, creating an interference pattern which changes with the viewer’s angle and distance.



On the laboratory floor, the researchers conduct their experiments. Naturally, the cubic measuring booths are also shielded against electromagnetism and acoustic disturbances.



The corridor is also purposely dedicated to communication. The piece of art on the dividing hall wall, made of stainless-steel dowels, was, like the façade, inspired by the research performed in this location.

The two-storey office wing and the higher, closed hall indicate the different **functional areas, picking up the architectural language of the main building**.

The ensemble derives its strength from its extremely

clear functional structuring; the arranging spirit becomes visible to the outside by the clear geometrical forms and the pleasantly proportioned parts of the building. Inside, clarity prevails, anything but natural with such a high degree of installation.

Hugo-Häring Preis 2014

In close collaboration with the involved scientists, we focused the first design intent on the structural requirements for the surroundings of the experiments. The understanding we thereby gained for their complex and demanding work as well as the spatial context provided the basis for the design of the skin.

The surrounding area is characterized by institutional buildings dating from the 1970's, a landscaped park and a dense woodland as the backdrop. From further off, the edge of the forest appears solid and impenetrable. Only from up close do the structures dissolve, revealing a delicate foliage. The same can be said of the experiments. With a meticulously performed approach to the surfaces, the insight grows. Our perception and the image we see keep changing, without the material itself altering.

Standort

hammeskrause architekten

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