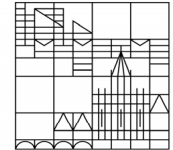


# Physikalisches Kolloquium

Universität  
Konstanz



**Dr. rer. nat. Julian Kalb**  
Production Architect, Zeiss SMT, Oberkochen

Di 09.05.23

15:15 Uhr

P 603

im Anschluss

Getränke und Snacks

## **From German Future Award 2020 to industrial scale production: Challenges of the next generation EUV lithography lenses**

This presentation will provide an insight into the characteristics of the latest EUV lithography lens technology, which Zeiss is the only company in the world capable of producing.

The mass production of transistors with dimensions below 10 nm requires numerous technological features in the fields of optics, thermodynamics, mechanics, electronics, materials science, plasma physics, laser physics, surface physics and chemistry. The development and use of such advanced interdisciplinary technologies are supported by extensive simulations and automatic production control. The talk presents some critical topics in lens design at Zeiss, including the latest generation of EUV technology (High NA).

The lenses require incredible precision. The image position must be held in the center of a 2-euro coin from an Earth-Moon distance while the wafer stage under the lens is accelerated with several times the acceleration of gravity - many times per second - resulting in strong vibrations. The drift speed of the optical components must be 100 orders of magnitude slower than grass growth. If the mirrors were scaled up to the size of Germany, the largest unevenness must not be larger than the diameter of a human hair. In order to achieve this and to be able to serve the global chip market quickly, research results flow directly into production.

Due to the high demand on the chip market, our teams are constantly growing. Therefore, we are looking for new talented and motivated colleagues. Our daily work touches many disciplines in engineering, physics, chemistry, mathematics and project management such as materials science, optics, vibrational dynamics, thermodynamics, simulations, new manufacturing technologies, Industry 4.0 and many tools related to project management.

**Host: Prof. Schmidt-Mende**

**Organisation: Prof. Bechinger**