

PHYSIKALISCHES KOLLOQUIUM

AM 29. JANUAR 2018 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



Steam cracker II, the largest individual plant at BASF's Ludwigshafen site, covers a surface area of about 64,000 square meters.



BASF's new supercomputer *Curiosity* with 1.75 petaflops computing performance, ranked #65 in the TOP500 list of the fastest supercomputers in the world.

MATH, MODELS, MOLECULES: WHAT A THEORETICAL PHYSICIST DOES IN A CHEMICAL COMPANY

DR. SIMEON SAUER

BASF SE LUDWIGSHAFEN

Since the company's foundation 150 years ago, BASF's strategy has always been to continuously innovate products and production processes by investing a significant share of its revenue in research. Today, nearly 10% of its 114,000 employees work in Research & Development, many of them in the headquarter in Ludwigshafen.

This dense packing of natural scientists offers ample opportunities for physicists of all shades. For the theoretical subspecies of *homo physicus*, the increasing use of modeling & simulation techniques in chemical research offers the unique possibility to work in an industrial environment where their analytical skills are required and valued!

The colloquium intends to illustrate this point with exemplary projects from my everyday work. They span the range from purely empirical "black-box" modeling methods to more mechanistic approaches to model the intriguing dynamics of (bio-)chemical processes. An important finding is that it takes the expertise of various disciplines – chemistry, biology, physics, engineering, computer science, math – to deliver a model-based solution for a real-world problem.