



NWO Physics 2025 - Focus Session

The value of fundamental research

Tuesday 21.1.2025, 11:30 - 13:00 in Veldhoven, Koningshof

How does fundamental research in STEM fields (science, technology, engineering, mathematics) contribute to economical and societal wealth? We take wealth, technology and technological progress for granted, and despite evidence that fundamental research is crucial to continue this path, funding is effectively declining since decades. In this focus session we investigate this mismatch with presentations from experts. We aim to obtain a diverse view on questions including

- Technological progress: luxury or necessity? (e.g., energy for 8 billion people)
- Is fundamental STEM research economically useful – and how is the case for the Netherlands, with a society based only by 20% on industry?
- The uniqueness of education by fundamental research in STEM fields and its importance for all businesses, not only industry.
- If the economic benefit of fundamental research is as evident as often claimed, why is the public and private sector not investing much more in it – or is it?

Dietmar Harhoff, Director at the MPI for Innovation and Competition (GER)

Quantifying the value of fundamental research

The economic and societal contributions of basic research are hard to measure, but recently there has been some progress in quantifying components of it. The presentation summarizes the recent literature and discusses estimates of the rate of return of basic research.

Liedewij Laan, Delft University & Beta in Bestuur & Beleid

How to bring the policy and science worlds closer together

BiBB, "STEM for public governance and policy", is concerned about the lack of (access to) STEM knowledge at the government. Simultaneously many STEM PhDs like to dedicate their career to solving societal problems, however they often do not know how. Therefore, BiBB's goal is to inspire and provide opportunities for young STEM scientists to join the public sector, thereby increasing (access to) STEM knowledge at the government. Here I will present our motivations and actions: we organized two career days, will have our first summer school in 2025, and are lobbying for high-end fellowships.

Sjoerd Verduyn Lunel, Research Director at ASML and Utrecht University

Fundamental research from the university and industry perspective

Fundamental research in industrial perspective is essential to fuel the long-term company roadmap (10 y) of highly innovative companies. Industrial research should in part be fundamental aimed at long-term challenges and competence development. This part of fundamental research should be done in direct interaction with academic partners under the adagio learning together. Of course this comes with challenges regarding IP ownership, Non-Disclosure-Agreements (NDA), and freedom to publish, but it is essential for the quality and impact of fundamental research in academia to facilitate this branch of fundamental research in industrial context with an open mind.