

## PRESS RELEASE

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### **New FUTURAS IN RES conference series kicks off**

### **Biological Transformation: nature as a driver of innovations in engineering and manufacturing**

**The Fraunhofer-Gesellschaft presents the new FUTURAS IN RES international conference series on June 28 and 29, 2018 in Berlin. This forward-looking event will examine Biological Transformation in manufacturing. International researchers, businesspeople and politicians specialized in many different disciplines will exchange views on what new opportunities materials and principles found in nature could open up for engineering, manufacturing and logistics in the future.**

Nature has inspired many innovations: salt shakers modeled after poppies, robot gripper arms reminiscent of elephant trunks or cameras like insect eyes. Traditional bionics, however, is only the initial stage in a much greater and more extensive trend. "We regard Biological Transformation as the systematic application and combination of processes, principles and materials found in nature to engineering. It will lead to entirely new and more sustainable processes in value creation and manufacturing. By focusing on nature as a driver of innovations, we can usher in a new era," says Prof. Reimund Neugebauer, President of the Fraunhofer-Gesellschaft.

There are different types of Biological Transformation. Bionics addresses the imitation of natural structures; biotechnology utilizes cells to produce pharmaceutical ingredients, for example. The next stage of the transformation will be biointelligence, or the merging of biology and IT. We're already seeing the initial signs of this in the form of machine learning and swarm-intelligence logistics systems. But that is merely the beginning.

#### **Effects on manufacturing and society**

If we learn from nature, then we can foster efficient and sustainable growth as well as establish solutions to the great challenges of our time: consumption of resources and energy, climate change and the resilience of important supply systems. Biological Transformation is a logical and necessary complement to digitalization and Industrie 4.0. This paradigm shift will ensure sustainability in technological progress. Therefore, the German government subsidizes research in the long term with the aim to better transfer the commitment to Biological Transformation to key areas of the economy.

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#### **Editorial Notes**

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This new mindset and approach arose from various technological developments. For one, advances in digitalization – such as better computing capacity and new algorithms – are making it possible to improve analysis and comprehension of biological processes and patterns. What's more, entirely new technologies and opportunities for connectivity have become available. Both factors are important prerequisites for Biological Transformation. But this will happen only if life, materials and manufacturing scientists, as well as specialists in IT and other disciplines, begin collaborating early on. They must also transfer their findings to manufacturing and other key business sectors.

### **Exchanging expertise across borders**

“Connected research gives rise to entirely new ways of thinking, and this new initiative is the right platform for that. I hope that a lot of scientists and other interested people embrace the Fraunhofer-Gesellschaft's call to action, and go on to generate new ideas and solutions for a more sustainable future with regard to the environment, society and economy,” says Dr. Georg Schütte, State Secretary in the Ministry of Education and Research.

International experts will talk about ideas, opportunities and challenges during six FUTURAS IN RES focus sessions. The main topics will be Industrie 4.0, biomanufacturing, artificial intelligence, biotechnology, bionics, circular economy and sustainability. Some of the questions they will discuss at the conference include the following: What potential does biology by design offer for creating new, sustainable production solutions? How can we tap this potential to more effectively protect the environment, use resources more sustainably and improve the resilience of important supply systems? Which innovations will allow us to deal with plastic sustainably in the future? What new approaches can artificial intelligence provide that are more than a mere imitation of human patterns of behavior? And how can we shape Biological Transformation for manufacturing in ways that will benefit both individuals and society as a whole?

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### About FUTURAS IN RES: Shaping the future with Fraunhofer

Understanding the complex effects of new technologies and disruptive innovations is essential to the success of entire societies and economies. The boundaries between a great many different aspects of life, experience and work will blur more and more. Any structural change through technological developments must be recognized, understood and communicated at an early stage in order to actively shape its long-term economic, social, political and cultural impact. And FUTURAS IN RES provides an ideal forum – where ideas and solutions come together, advocates and skeptics alike assess developments, and thinkers are confronted with new questions. This new conference series presented by the Fraunhofer-Gesellschaft will offer creators and decision-makers from science, industry and government a new opportunity every year to exchange views on the topics and technological paradigm shifts of tomorrow. FUTURAS IN RES combines a commitment to scientific excellence with bona fide internationality and a profound focus on value creation – and offers long-term benefits for manufacturers and society with relevant future-ready solutions.

### More information on the FUTURAS IN RES conference:

[www.fraunhofer.de/futuras-in-res](http://www.fraunhofer.de/futuras-in-res)

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