

PRESS RELEASE

Fraunhofer Initiative for Biogenic Value Creation and Smart Farming at MeLa 2023

PRESS RELEASE

12 September 2023 || Page 1 | 5

Hi-tech from seed to harvest

Digitalization is now even making inroads into the cowshed. The purpose behind this move is to ensure animal welfare and the sustainable production of food and renewable raw materials. The Fraunhofer Institute for Large Structures in Production Engineering IGP and the Fraunhofer Institute for Computer Graphics Research IGD will be showcasing their latest developments in this specialized field at MeLa 2023. This will be the first time that the two Rostock research institutes have exhibited at this particular agricultural trade show. They will be presenting the results of their work at the “Campus Wissenschaft” stand which will be jointly run with partners from other scientific institutions. One of the experiences laid on for visitors will be a virtual tour of a cowshed, using VR glasses to monitor the health and welfare of the animals kept there.

**Fraunhofer at MeLa
Mühlengeez 2023**

14 - 17 September

Campus Wissenschaft
Hall 1
Booth 142

Initiative for the agriculture of the future

But what do data processing and mechanical engineering have to do with each other? And, more to the point, what can they jointly contribute to the agricultural sector? Fraunhofer IGD develops solutions for optimizing the cultivation of fields and of animal husbandry. In the process, large volumes of images and data are captured and analyzed. Fraunhofer IGP uses the results to find practical agricultural solutions which it supplements with technologies such as robotics, sensor systems and automation.

The Rostock-based researchers are part of the interdisciplinary Fraunhofer initiative for Biogenic Value Creation and Smart Farming, which aims to develop innovative and sustainable technologies for the agricultural industry of the future. Smart farming makes use of modern information and communication technologies, for example field robots and drones for spraying crops and spreading fertilizers, as well as a variety of sensor systems and networked devices. The initiative focuses on the entire biogenic value chain, from seed to harvest. Examples of current practice include the monitoring of dairy cows, robot-assisted planting of strawberry plants and the automated gauging of fruit

PRESS RELEASE

quality. Biogenic value creation covers the production of food through to its ultimate utilization as either a foodstuff or a renewable raw material.

The research initiative has now been running for the past twelve months. Five Fraunhofer institutes are involved - the two in Rostock and three others in Bavaria. There, the focus is mainly on special X-ray and sensor technology, but also on food production. "All are contributing their respective research expertise," says Steffen Dryba, Head of Department at Fraunhofer IGP. The project is funded by the German Federal Ministry of Education and Research (BMBF) and the German federal states of Mecklenburg-Western Pomerania and Bavaria. The Fraunhofer-Gesellschaft has established a worldwide reputation for applied research with a high degree of practical relevance. "The initiative comes with considerable startup funding," adds Dryba. "It serves to build up know-how, research resources and infrastructure for the agricultural market in the long term."

More practice partners sought

Beneficiaries of this research may include farmers and agricultural machinery manufacturers, as well as established companies and startups looking to enter the field of data processing. "Our initiative has relevance for the entire industry," adds Dr. Philipp Wree, Department Lead at Fraunhofer IGD. "It is clear that the sector needs to further automate and digitalize, but many agricultural companies don't have the resources and in-house expertise. In addition to supporting local companies, we want to support potential business startups and relocations." Biodiversity, sustainability and animal welfare play a major role here.

Various partners operating in the agricultural sector practical are already playing their part in the initiative. The intention is to create a broad network that also includes representation from the industry. Additional partners are always welcome. "As research institutes, we offer the opportunity for companies to put their ideas for digitalization into practice," stresses Dr. Wree. "The initiative creates a central point of contact for a holistic approach to the issues at hand."

PRESS RELEASE

12 September 2023 || Page 2 | 5

**Fraunhofer at MeLa
Mühlengeez 2023**
14 - 17 September

Campus Wissenschaft
Hall 1
Booth 142

PRESS RELEASE



PRESS RELEASE

12 September 2023 || Page 3 | 5

**Fraunhofer at MeLa
Mühlengeez 2023**
14 - 17 September

Campus Wissenschaft
Hall 1
Booth 142

Image 1: Fraunhofer IGD develops digital smart farming solutions at its Rostock site and works with technologies for automated processes such as crop-spraying and fertilizer-spreading drones. Equipped with data on plant health, soil conditions and the terrain, the large drone seen here can apply fertilizer or pesticides to individual sections of the field in a targeted manner. (© Fraunhofer IGD)



Image 2: Two Fraunhofer Institutes, IGD and IGP, are collaborating in the development of robotics for automated quality control. Robots equipped with cameras and sensors and supported by AI, such as SPOT seen here, can detect pests or symptoms of disease on strawberry plants. (© Fraunhofer IGP)

PRESS RELEASE



PRESS RELEASE

12 September 2023 || Page 4 | 5

**Fraunhofer at MeLa
Mühlengeez 2023**
14 - 17 September

Campus Wissenschaft
Hall 1
Booth 142

Image 3: Prototype of a planting robot developed by Fraunhofer IGP: Drilling spirals dig holes for strawberry seedlings, which are then planted by hand. The advantages are the time saving and increased quality thanks to the identical distances between plants and uniform planting depths. In the future, the robot will take over all work steps during planting. (© Fraunhofer IGP)

Further information:

[The Fraunhofer Initiative for Biogenic Value Creation and Smart Farming](#)
[More about research work in the area of Smart Farming at Fraunhofer IGD](#)
[More about research work in the area of Smart Farming at Fraunhofer IGP](#)

PRESSEINFORMATION

About Fraunhofer IGD

Since 1987, the Fraunhofer Institute for Computer Graphics Research IGD has been setting international standards for applied research in visual computing, the branch of computer science that deals with images and 3D models. We transform information into images as well as images into information, and we support industry and business in their strategic development. Keywords here are human-machine interaction, virtual and augmented reality, artificial intelligence, interactive simulation, modeling, 3D printing and 3D scanning. Around 180 research staff at the three sites in Darmstadt, Rostock and Kiel are generating new technological application solutions and prototypes for Industry 4.0, digital healthcare and the smart city. Our products take on international relevance through our partnership with the sister institute in Graz and Klagenfurt. Our matrix organization enables us to serve our clientele from a wide range of industries with technical and competitive services relevant to their needs. For this purpose, we have assembled cross-functional teams of experts with extensive industry experience, who also take on planning, management and evaluation responsibilities for projects of any magnitude.

PRESSEINFORMATION12 September 2023 || Seite 5 | 5

About Fraunhofer IGP

What will the innovative production of large structures look like in the future? This is the subject of the research being done at the Fraunhofer Institute for Large Structures in Production Engineering IGP in Rostock. Within the framework of research and development projects, Fraunhofer IGP works in collaboration with partners from industry to realize concepts for product and process innovations. The research focus is on future-oriented industries such as shipbuilding and steel construction, energy and environmental technology, rail and commercial vehicle construction, and mechanical and plant engineering. Management of the formerly independent institution was transferred to Fraunhofer at the beginning of 2020, making it the first institute of the Fraunhofer Gesellschaft to be headquartered in Mecklenburg-Vorpommern.