



Real people. Real science. Real space impact.

Iodine, Thrusters & Thoughts

*Behind the Scenes,
With Katja Wätzig,
Scientist bei Fraunhofer
Institute for Ceramic
Technologies and Systems IKTS*





Pioneering Materials for the Future of Propulsion

For several years, Katja has been immersed in the world of material development, driven by a singular ambition: to create a cathode emitter that can endure the extreme demands of space propulsion. *Within iFACT-MP*, her focus has been to make the material more temperature-stable, a small change with enormous impact, extending lifetime and boosting performance for long-term missions.

The Thrill of Electric Propulsion

What excites Katja most about working with iodine-based thrusters is the blend of technical mastery and visionary thinking it requires. Space technology demands precision, but it also sparks imagination, ideas that not only drive spacecraft forward, but often cascade into terrestrial applications too.

"It's a highly motivating environment," she notes, "Creative solutions become part of everyday problem-solving."

"We're pushing the limits of stability and performance at the same time."



Breaking New Ground in iFACT-MP

Among the proudest achievements so far has been fine-tuning the material properties to deliver measurable performance improvements within the thruster system. But reaching this milestone hasn't been straightforward. The work demanded countless analyses, intricate measurements, and a race against limited time.

"Material development is a marathon of experiments," Katja recalls. *"With the clock ticking, we had to accelerate our processes and still keep the quality intact."*

A Vision for Europe's Space Future

Looking ahead, Katja sees *iFACT-MP* as a turning point for European propulsion. *Iodine's potential* as an affordable, sustainable fuel promises not only resource-efficient missions, but also a secure supply chain on European soil.

This innovation gives Europe the chance to stand on its own, with independent technology that can shape the future of space propulsion



Beyond the Lab

For Katja, the project is more than technical milestones. The most memorable moments come from the joint events with partners, when progress is celebrated face-to-face, and collaboration fuels motivation.

These experiences reaffirm the deeper value of EU projects: creating a space where cultures, expertise, and perspectives converge. "*Working in such a diverse environment*," Katja reflects, "*teaches you as much about people as it does about engineering*."

Outside of work, balance comes from culture and nature. Katja likes to visit local theatres and open-air concerts in the summertime. Whenever possible, she goes hiking with her family and their dog in Saxon Switzerland. These experiences, rooted in both creativity and the outdoors, bring fresh energy back into the lab.

iFACT-MP in just three words:

"Accessing new worlds"

"The strength of a team lies in each individual member."

Words for Future Innovators

Asked what advice they would give to young researchers entering EU-funded projects,

Katja is clear:

"These projects open doors to brilliant collaborations. You gain knowledge not just from research, but from understanding how teams and cultures work together."



Behind every thruster test and subsystem review, there's a human story, full of curiosity, ambition, and perseverance.

