



PROJECT PARTNER SEARCH FORM

- I offer my expertise to participate as a Partner in a Horizon Europe Project
 I am planning to coordinate a project and I am looking for Project Partners

TOPICS OF INTEREST

1. TOPIC ID: [HORIZON-CL4-2024-DIGITAL-EMERGING-01-03: Novel paradigms and approaches, towards AI-powered robots– step change in functionality \(AI, data and robotics partnership\) \(RIA\)](#).
2. **Other relevant** calls/topics within Horizon Europe in the areas of expertise mentioned below

PARTNER INFORMATION

Inveel's mission is to lead the way in pioneering high-resolution tactile sensors for robots, fundamentally changing how they perceive and interact with their surroundings. Our expertise lies in crafting cutting-edge high-resolution robotic skin, granting machines an unmatched ability to sense their environment with extraordinary precision. Through our innovative nanoelectrode printing technology, we create sensor-rich surfaces that replicate the sensitivity of human touch. Our focus is on enabling robots to distinguish between textures, detect temperatures, and perceive forces with exceptional accuracy.

Inveel's groundbreaking nanoelectrode printing technology allows us to create sensor-rich surfaces with exceptional precision. We are pioneering the development of high-resolution tactile sensors embedded in robotic skins, enabling robots to sense and interact with their environment with an unparalleled level of detail and accuracy. At the core of our innovation lies the ability to print sub-micrometer-sized electrodes on various polymer substrates that allows us to achieve printing resolutions as fine as 130 nanometers. This precision enables our sensors to detect the most nuanced tactile sensations, mimicking human touch perception. The use of printed silver wires offers remarkably low resistivity, which unlocks a world of benefits, including minimal power consumption, exceptional signal-to-noise ratio, and rapid response times. Our technology's versatility extends to diverse substrates, allowing us to easily implement sensors on different-shaped surfaces of robots, ensuring an adaptable and comprehensive sensory experience.

Inveel thrives on a foundation of expertise and collaboration. Founded as a spinoff of the Paul Scherrer Institute, our team brings together interdisciplinary expertise from leading institutions worldwide.

Description of the Legal Entity

- | | | |
|---|---|---|
| <input type="checkbox"/> Higher Education | <input type="checkbox"/> Research Institution | <input type="checkbox"/> Public Administration |
| <input checked="" type="checkbox"/> Industry /SME | <input type="checkbox"/> NGO | <input type="checkbox"/> Other: Please specify |

Description of the (Research) Team

Inveel, born as a spinoff from the Paul Scherrer Institute in Switzerland, boasts a team of accomplished engineers and postdoctoral experts, each contributing unique proficiencies to our pioneering endeavors. Our team's expertise spans the following domains:

- Printed electronics, printing high resolution electrodes in the 100s of nanometers width on large area.
- Micro and nanofabrication (we operate in a 320 m2 net area cleanroom, e.g. photolithography, e-beam lithography, 3D fabrication)
- Material and surface characterization - SEM (Scanning Electron Microscopy), AFM (Atomic Force Microscopy), FIB (Focused Ion Beam), and TEM (Transmission Electron Microscopy)

Expertise of the Team Leader

Dr. Barbara Horvath earned her Ph.D. while conducting research at the National Institute of Materials Science (NIMS) in Tsukuba, Japan. Following her doctoral studies, she embarked on a postdoctoral journey, spending time at NIMS and CNRS before joining PSI from 2015 to 2019. During her tenure at PSI, she achieved a breakthrough by developing an innovative process for fabricating flexible electronic circuits through the precision printing of nanoparticle-based inks, resulting in the remarkable reduction of printed conductive wire widths to just 200nm.

Dr. Horvath boasts an impressive track record of transforming visionary concepts into practical solutions, leading to the successful filing of multiple patents. Her contributions in the areas of flexible electronic circuits, block copolymer nanolithography, novel replication techniques, and wafer-level optics underscore her unwavering commitment to pushing the boundaries of technological innovation.

Potential role in the project

- Research Training
 Dissemination Other: **Product development expertise**

Already experience as a	Coordinator	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
	Partner	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
	Expert Evaluator	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
CONTACT DETAILS			

Contact Person: Barbara Horvath
Organisation: Inveel GmbH
City: Villigen
Country: Switzerland
Phone: +41 56 310 5002
Email: barbara.horvath@inveel.com
Organisation Website: www.inveel.com
Contact Person Webpage: https://www.psi.ch/de/Inq/people/barbara-horvath