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Your Target Call

HORIZON-CL4-2027-01-MAT-PROD-06 Circular innovative advanced materials: facilitating the transition from design to markets (RIA). Also interested in HORIZON-CL4-2027-01-MAT-PROD-22 on reducing dependencies on critical and strategic raw materials, and HORIZON-CL4-2027-01-MAT-PROD-61, Fast Track to Research and Innovation for breakthroughs in industrial technologies.

Your Expected Contribution to the Project / Consortium

Partner, not coordinator. MIC builds the fluidic layer of a process: flow control, inline and offline measurement of flow, pressure, temperature and viscosity, automated platforms, and chips and cartridges made in-house in PMMA, PEEK, fluoropolymers and PDMS. In a circular materials project this covers continuous-flow modules for liquid-liquid extraction and separation, screening of solvents and extractants at microlitre scale, synthesis of particles and nanoparticles in continuous flow, and measurement of the process while it runs. We use our own instruments where they bring something the market does not, and instruments from the market where they fit better. We also take exploitation and valorisation tasks: user need analysis, business modelling, market alignment, IP route and exploitation plans. Ten spin-off companies have come out of that work. We have been a partner in more than fifty European projects, so we can also help a team that is new to Horizon Europe with the parts that are not written in the call text.

Biography

Julia Sepulveda Diaz is CEO of the Microfluidics Innovation Center (MIC), a deeptech SME in Paris working on microfluidic instrumentation, flow control and inline measurement. She trained as a chemical engineer at ITESO in Guadalajara, took a master in biochemistry at CINVESTAV in Mexico, and holds a PhD in cell biology from Université Paris-Est Créteil, on glycobiology and neurodegenerative diseases. She then worked as a technology transfer engineer at the same university and spent two years as a postdoctoral fellow at the Brain and Spine Institute in Paris, on cell-based models for drug screening. She joined the Elvsys group in 2018 as collaborative research and innovation manager, became International Partnership Leader in 2019, and has led MIC since it became an independent company in 2024. Her work sits between microfluidic technology and European research funding. With a team of researchers and engineers, she turns needs expressed by research consortia into instruments that other laboratories can run: pressure-driven flow controllers, the patented Galileo inline flow sensor, viscosity measurement, automated perfusion and screening platforms, and microfluidic chips made in-house. She has also managed doctoral candidates and postdoctoral fellows within Marie Skłodowska-Curie projects. MIC has taken part

in more than fifty European projects over more than ten years, almost always as the microfluidics and instrumentation partner. They include the EIC Transition project GALILEO, the EIC Pathfinder projects THOR and ERMES, the Cluster 4 project BioProS, the Horizon Europe projects NAP4DIVE and EDAPHOS, the Horizon 2020 project LIFESAVER, and the metrology partnership MFMET II, where MIC sits on the advisory board. Ten spin-off companies have been created from technologies matured in these collaborations.

Research Areas / Expertise

Microfluidic instrumentation and flow control: pressure-driven flow controllers, including an autonomous controller that needs no compressed air source and a gas-tight controller with gas mixture management; the Galileo inline flow sensor, developed within European projects and patented (granted in the United States, France and Europe: US12270691B2, FR3126773B1, EP4399493B1), 20 nL/min to 10 mL/min, 2% accuracy, 20 ms response, with clogging and fouling detection; viscosity measurement inline or offline; thermal control for live imaging. Platforms: continuous flow and multiphase systems, droplet generation and encapsulation, liquid-liquid extraction and membrane separation with independently controlled loops, nanoparticle synthesis in flow, small volume screening, perfusion and organ-on-chip culture, with integrated software and data logging. Microfabrication: PDMS soft lithography, PMMA hot embossing, PEEK and fluoropolymer machining, mechanoelastic PMMA and Flexdym chips, and a thermoplastic chip process that needs no cleanroom. Technology transfer: from a user need to a prototype to a product, ten spin-off companies, exploitation and business model work in European consortia, and metrology and standardisation of microfluidic devices (MFMET II, 24NRM03). Selected projects: GALILEO (EIC Transition, GA 101113098), BioProS (Horizon Europe Cluster 4, GA 101070120), THOR (EIC Pathfinder, GA 101099719), ERMES (EIC Pathfinder), NAP4DIVE (GA 101155875), EDAPHOS (GA 101112768), LIFESAVER (GA 101036702), VOXWRITE (ANR and SNF, 4D printing), ThermaSMART (two-phase cooling of microprocessors), BIOALL (CO₂ and biomass valorisation).

Motivation, Expectation and Plan

MIC joins Horizon Europe consortia as the partner that turns a research need into an instrument, and then into something that survives after the grant ends. MAT-PROD-06 is about exactly that step, from the design of circular advanced materials to their uptake, and we want to apply our microfluidic engineering to a field that is new for us. At the forum I want to work with VAM on where fluidic modules, extraction and synthesis platforms and inline measurement fit their magnet recycling and rare earth free magnet objectives, and to meet the other teams targeting MAT-PROD-06, MAT-PROD-22 and MAT-PROD-61. I am also looking for experienced coordinators, since we do not coordinate ourselves. Follow-up: a call with the coordinator within four weeks of the forum to define our tasks, a one page contribution note, a letter of intent by December 2026, and participation in the proposal for the 2 February 2027 deadline as technical and exploitation partner.