Research Position on Stretchable ElectroHydroDynamic Pumps

The Soft Transducers Laboratory (EPFL-LMTS) at the EPFL in Neuchatel, Switzerland has an opening for a talented and motivated PhD student or Postdoc to develop Stretchable Pumps for soft robotics and wearable haptics.

Your Profile
- MSc or PhD in Experimental Physics, Electrical or Mechanical Engineering, or Materials Science
- Strong experimental skills
- Ability to collaborate closely with colleagues in a multicultural setting
- Ideally experience with soft actuators or in robotics

Research Context
The EPFL-LMTS is a leader in developing complex microsystems based on smart materials, with a focus on electrically actuated soft robots and wearable human-machine interfaces. We recently developed a proof of concept stretchable pump, that allows using the benefits of pneumatic or fluidic actuation, but eliminates bulky and noisy compressors.

This position is funded by the Swiss National Science Foundation, in collaboration with Prof Shingo Maeda of the Shibaura Institute of Technology in Japan.

Your Tasks
You will develop a new generation of stretchable and flexible pumps based on electrohydrodynamics (EHD) and explore applications in robotics and haptics. Your tasks include:

- Developing new fabrication methods for elastomer-based soft pumps (additive manufacturing for planar and fiber configurations)
- Develop and automate test benches for pump characterization
- Develop analytical scaling models and FEM simulations to guide design towards lower voltage and higher performance
- Explore electrochemistry of EHD
- Create demonstrators to validate applications in soft robotics and haptics
- Publish in high level journals

Contract Details
- 12-month contract, renewable (CDD). For postdoc max 4 years, for PhD students typically 3-4 years
- Start date: 1.10.2019 or by arrangement
- Work location is Neuchatel, Switzerland.

We Offer
- Excellent facilities (state of the art cleanrooms, dedicated platform for soft matter processing, extensive characterization equipment)
- A young, dynamic, inter-disciplinary, and international working environment.
- Competitive salary

To apply for the position, please email a CV, cover letter, university transcript, and list of three references to herbert.shea@epfl.ch. (incomplete applications will not be considered)

Further information about our lab in general can be found at https://lmts.epfl.ch