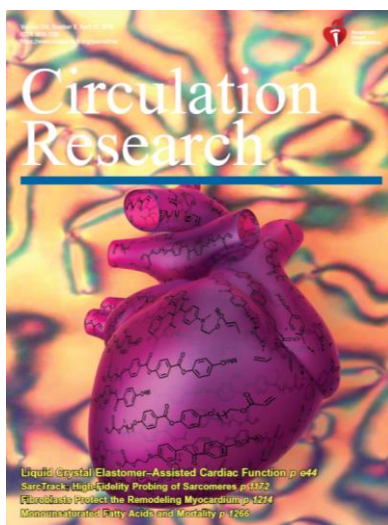
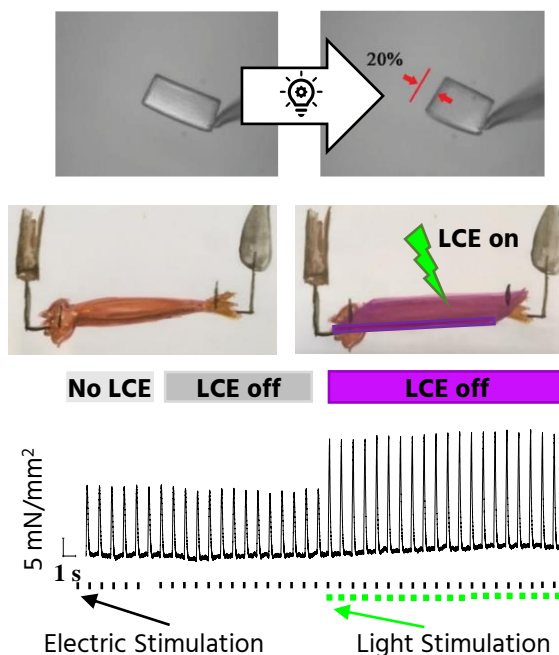


## Liquid Crystalline Elastomers to assist cardiac functions

Duration: 3 years for PhD, 1 year (possibly renewable contract) for Post-Doc

Liquid Crystalline Elastomers (LCEs) are stimuli-responsive **smart polymers**, which are able to **contract** reversibly and generate force. We have demonstrated that **photo-activated LCE stripes** can be used to **support muscle contraction** of mouse trabeculae *in vitro* (Circ. Res. 2019, 124, e44–e54). We are looking for highly motivated candidates who are interested in **processing and mechanical characterization** of Smart Polymers to join the Optics of Complex Systems lab at the European Laboratory for Non Linear Spectroscopy in Florence.



### Why this project?

- ✓ Use of LCEs to restore the cardiac mechanical function *in vivo*.
- ✓ Development of implants for patients suffering from **heart failure** or other diseases characterized by ventricular or atrial mechanical failure.

### Our challenges

- ✓ Mimic biological muscles with synthetic polymers.
- ✓ Test the use of micro-LED light sources to drive the implants in a biological environment
- ✓ Scale up polymer synthesis and **3D print** the implants.

### Who can join us?

Organic/materials chemists and materials engineers are welcome to send their application to join our interdisciplinary group

For information write to Dr. Camilla Parmeggiani  
([camilla.parmeggiani@unifi.it](mailto:camilla.parmeggiani@unifi.it))

Research in the framework of the project REPAIR (FET\_PROACTIVE-2019)

