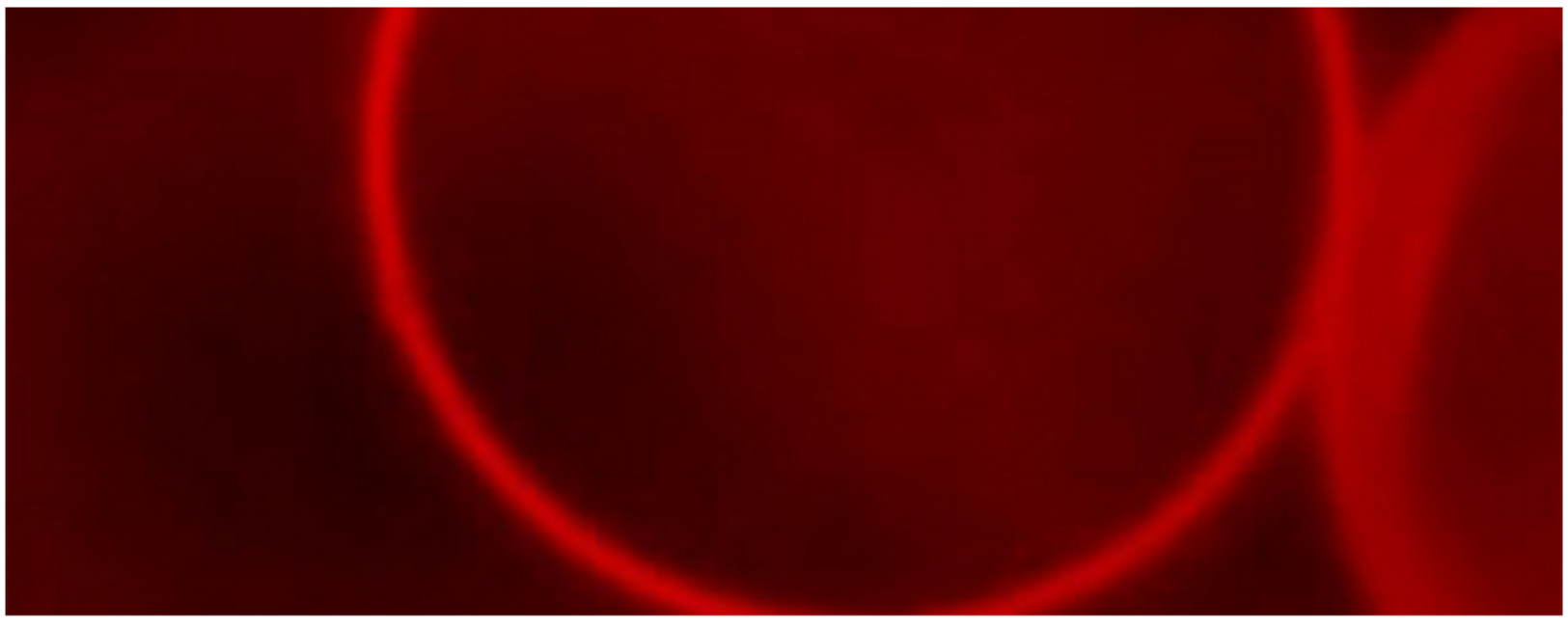
Vol. 47 No.5-6 - Highlights

Versatile method yields synthetic biology building blocks (Vol. 47 No. 5-6)



Fluorescence microscopy image of polymersomes, taken 3 days after production

New high-throughput method to produce both liposomes and polymersomes on the same microfluidic chip
Synthetic biology involves creating artificial replica that mimic the building blocks of living systems. It aims at recreating biological phenomena in the laboratory following a bottom-up approach. Today scientists routinely create micro-compartments, so called vesicles, such as liposomes and polymersomes. Their membranes can host biochemical processes and are made of self-assembled lipids or a particular type of polymers, called block copolymers, respectively. In a new study, researchers have developed a high-throughput method--based on an approach known as microfluidics--for creating stable vesicles of controlled size. The method is novel in that it works for both liposomes and polymersomes, without having to change the design of the microfluidic device or the combination of liquids. The authors recently published these findings. Typical applications in synthetic biology include the encapsulation of biological agents and creation of artificial cell membranes with a specific biochemical function. They anticipate that their method might also be applicable for the controlled fabrication of hybrid vesicles used in bio-targeting and drug-delivery.

J. Petit, I. Polenz, J.- C. Baret, S. Herminghaus and O. Bäumchen, Vesicles-on-a-chip: A universal microfluidic platform for the assembly of liposomes and polymersomes, *Eur. Phys. J. E* **39**, 59 (2016)

screenshots for collage taken from http://www.europhysicsnews.org/vol-47-no-5-6-highlights?start=10