Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Formation and characterization of artificial lipid bilayers on optical fibers PAULINE TOUSSAINT, LAURENT DREESEN, University of Lige — Transports across cellular membranes are at the basis of a lot of biological processes such as the transmission of information in neurons. Their characterization is therefore of crucial interest. As they are equivalent to biological membranes, artificial lipid bilayers can be created to study membranes and transmembrane proteins properties or transmembrane transports. The aim of this work is to develop a new method for the fabrication of artificial membranes, based on the use of optical fibers as support for the bilayer, and for their characterization by fluorescence measurements. We use microfluidics on fibers to create two phospholipid monolayers that we approach close enough to form a bilayer. The membrane formation is checked using fluorescein or a fluorescent sodium probe, Tetra (tetramethylammonium) salt (sodium green), whose optical signal depends on sodium concentration.

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Date submitted: 08 Nov 2016 Electronic form version 1.4