

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Emergence of DNA-encapsulating liposomes from a DNA-lipid blend film¹ SHUNSUKE SHIMOBAYASHI, Department of Physics, Kyoto University, MAFUMI HISHIDA, Department of Chemistry, Tsukuba University, TOMO KURIMURA, MASATOSHI ICHIKAWA, Department of Physics, Kyoto University — A Micro-scale giant unilamellar vesicle (GUV) densely encapsulating molecular systems is one of the simplest life-mimicking model systems. The dehydration-rehydration process proposed by Deamer et al. more than 30 years ago generates vesicles to satisfy the constraints of micro-scale size, unilamellarity and densely polymer-encapsulation [1]. Nevertheless, the physico-chemical mechanism of a set of dehydration-rehydration process has been poorly understood. The present study reveals crucial factors on the process through fluorescent microscopic observation [2] and small angle x-ray scattering. From the results, we propose a plausible physical mechanism for the process, making it possible to optimize the encapsulation of any agent. [1] D. W. Deamer, G. L. Barchfield, *J. Mol. Evol*, 18, 203-206 (1982). [2] S. F. Shimobayashi and M. Ichikawa, *J. Phys. Chem. B* 118, 10688-10694 (2014).

¹This work was supported by Grant-in-Aid for JSPS Fellows Grant (No. 25-1270) and by KAKENHI (Nos. 26707020, 25103012, and 26115709).

Shunsuke Shimobayashi
Department of physics, Kyoto University

Date submitted: 05 Jan 2016

Electronic form version 1.4