

Abstract Submitted  
for the GEC12 Meeting of  
The American Physical Society

**Influence of plasma-treatments on the structure, superstructure, and function of membrane lipids**<sup>1</sup> MALTE U. HAMMER, ENRICO FORBRIG, ZIK plasmatis at the INP Greifswald e.V., KLAUS-DIETER WELTMANN, INP Greifswald e.V., STEPHAN REUTER, ZIK plasmatis at the INP Greifswald e.V. — Every cell, eu- or prokaryotic, has a membrane as an interface to the environment. Every substance that is applied from outside the cell has to interact with it. This includes plasma-generated reactive species in the liquid cell environment created by plasma-treatment. By the Singer and Nicolson model, proteins are embedded in a lipid bilayer. Proteins are the functional elements, lipids are the structural elements. Due to the amphiphilic nature of the lipids, they form (super-) structures in an aqueous environment. The exact superstructure is determined by a structural parameter of the lipid, its shape. Here, we show experiments on lipids by fluorophore-based liposome assays and raman spectroscopy. The results show a membrane-activity of plasma-born reactive species against lipids and lipid structures. Based on this results and literature, we propose a model for a lesion-forming mechanism in membranes of some reactive species created by plasma-treatment. It is based on a hydrophobic-hydrophilic mismatch due to lipid peroxidization induced by reactive species generated in liquids by plasma-treatment.

<sup>1</sup>This work is founded by German Federal Ministry of Education an Research (grant# 03Z2DN12). Thanks to S. Hahn for great assistance.

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Date submitted: 15 Jun 2012

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