

平成 17 年 9 月 6 日

応用物理学会北海道支部
会員各位

応用物理学会北海道支部

講演会のお知らせ

下記講演会を開催いたしますので、多数ご参加下さいますようご案内申し上げます。

演題：Modeling membranes: From microscopics to macroscopics

講師：Dr. Mikko Karttunen 氏

(Leader of the Biophysics & Statistical Mechanics Group, Helsinki University of Technology)

日時：平成 17 年 9 月 16 日 (金) 16:00 ~ 17:30

場所：北海道大学工学部物理工学系大会議室 (A-1-17)

主催：応用物理学会北海道支部

講演の要旨

Everything that enters or exits cells has to go, one way or the other, through the membrane. It is also well known that even small changes in the composition of cell membranes can sometimes strongly affect the functioning of, e.g., ion channels, which regulate the chemical and physical balance of cells.

I will discuss two different aspects related to composition. The first one is the effect of cholesterol on membrane properties. I will also present results in which a systematic coarse-graining has been performed to study the problem at micrometer length scales.

The second topic concerns particle separation. The polarizability of, e.g., biocolloids, can be used for particle separation and detection at around micron scale. As changes in composition lead to different responses to external fields, methods such as dielectrophoresis and electrorotation can be used to separate cancer cells or to detect toxins in water. I will discuss some theoretical aspects related to polarizability and response to external fields. Our theoretical approach compares favourably with experiments.

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