Lehrseminar Selected Topics in Physics

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Winter semester 2015/2016

The seminar consists of presentations and discussions of recent scientific publications in biophysics. We aim to discuss topics that are of interest to both theoreticians and experimentalists. Students are not required to have first attended other biophysics lectures.

Topics for the seminar

1. Transport at the nano-scale

Physical-chemical properties of lipid membranes: Lipid phases, lipid structure, lipid fluidity, dipole moments.

Transporting ions across membranes with low dielectric environments.

2. Water dynamics

Hydration shell of biomolecules: experiments and theory.

Understanding the role of water in chemical reactions.

3. Methods

Structural determination of protein structure: experiments.

Computational biophysics methods to study water dynamics.

Specific topics and the schedule of the presentations will be discussed during the first seminar.

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| Date | Topic | Name |
| 28.10.2015 | Active water transport | Mattia Saita |
| 04.11.2015 | NMR on confined water | Hendrik Mohrmann  |
| 11.11.2015 | Folding of membrane proteins | Lucian Grzegorzewski |
| 18.11.2015 | Carbon nanotubes interacting with lipid bilayers | Ömer Akay |
| 25.11.2015 | Hydration of surfaces | Emanuel Pfitzner |
| 02.12.2015 | Protein structure and drug design on HIV | Tom Resler |
| 09.12.2015 | *TBA* | Fucsia |
| 16.12.2015 | --- | --- |
| 23.12.2015 | --- | --- |
| 30.12.2015 | --- | --- |
| 06.01.2016 | Water dynamics (theory) | Thomas Giannos |
| 13.01.2016 | Neutron protein crystallography | Bernd Schultz |
| 20.01.2016 | *TBA* | Katerina Kanevche |
| 27.01.2016 | *TBA* | Moritz Senger |
| 03.02.2016 | *TBA* | David Ehrenberg |
| 10.02.2016 | *TBA* | Christian Spakowski |
| 17.02.2016 | Summary | --- |