

Zakład Biofizyki Molekularnej

Division of Molecular Biophysics

- Founded ~1990 by Andrzej Dobek and Adam Patkowski
- At that time focused on:
 - Various spectroscopic methods aiming at studying properties of individual molecules, typically of biological importance
 - Investigating energy transfer mechanism in photosynthetic systems
 - Developing methods for calculation of hydrodynamic properties of irregularly shaped macromolecules
 - Studying the nature of supercooled and glassy form of matter
 - Studying anisotropic properties of various systems induced by strong magnetic field

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Later the following topics were developed:

- Single molecule techniques, mainly Fluorescence Correlation Spectroscopy (FCS) and particle tracking applied to the study of biological molecules and model particles
- Application of single molecule techniques in living cells
- Application of FCS in the studies of microviscosity of different complex systems
- Application of Brillouin Light Scattering (BLS) to studying complex systems, including the kinetics of certain processes like curing and quenching
- Developing simulation tools for protein dynamics based on the grid (algorithm invented by Tadeusz Pakuła) – Ewa Banachowicz
- Experimental and numerical studies of charged colloidal systems including both the static structure and their hydrodynamic properties
- Developing and applying various versions of Brillouin Light Scattering for studying nanoscale-patterned materials, e.g. phononic crystals, multilayers, pillars etc.
- Inventing and studying properties of micro-actuators reactive to various environmental stimuli with creative optical setups built for that purpose
- Bio-organic photovoltaics –real photosystems on inorganic scaffold.

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New topics came with new members of the group.

In my opinion the strength of our group lies in the compatibility of the team members, both in the scientific and social (human) dimension.

Curiosity for Nature in many its aspects is our main driving force and diversity of topics is very stimulative, however it was the newly purchased coffee machine that turned out to be the most efficient focusing agent strongly enhancing the discussion rate.

„Recent” new members:

- Mikołaj Pochylski (optical methods)
- Paweł Zawadzki (particle tracking in bacteria)
- Bartek Graczykowski (nanomaterials)
- Thomas Vasileiadis (nanomaterials)
- Adam Krysztofik (nanomaterials)
- Georgios Fytas (nanomaterials and polymers)

We hope for:

- Jarosław Mazuryk (biomedical optical sensors)
- Rafał Białek (electrochemistry)

Current Staff:

Permanent:

Full professors: 0
UAM professors: 4
adiunkts: 4
senior teachers 1

Projects:

Full professors: 1
Adiunkts: 3