FDITE68 Primary processes in photosynthesis

(Petar Lambrev)

Description:

This course is designed to familiarize physics students with the biological processes of photosynthetic energy conversion. The material focuses on the molecular machinery and physical mechanisms of the light-dependent reactions of photosynthesis.

Topics:

Primary photosynthetic reactions

- Introduction to photosynthesis
- Structure and function of the photosynthetic apparatus
- Structure and function of Photosystem II
- Structure and function of Photosystem I
- Photosynthetic light harvesting
- Regulation of the photosynthetic reactions

Biophysical description of photosynthesis

- Excited states
- Excitons and energy transfer
- Marcus Theory for electron transfer
- Modelling energy and electron transfer

Artificial photosynthesis

Recommended literature:

Blankenship R.E.: Molecular mechanisms in photosynthesis, Blackwell Publishing, 2014