

## Electrochemical methods for the development and investigation of novel materials

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Conducting polymers are versatile materials applied in various technological fields [1-5].

During this presentation electrochemical [1], chemical [3] and biochemical [4] synthesis of conducting polymers (CPs). CPs-based structures in the design of various types of electrochemical biosensors will be outlined.

The applicability of CPs development of glucose biosensors based on glucose oxidase (GOx) will be discussed. Enzymatic reaction catalysed by GOx can be applied for the initiation of polymerization of some conducting polymers. We have shown that this method is suitable for the synthesis of polypyrrole, polyaniline [4], polythiophene [5] and some other conducting polymer based layers and nanoparticles. We also have demonstrated that formed nanostructures and nanoparticles shows good biocompatibility with living cells and when they were injected in mice. We have demonstrated that during such kind of synthesis of nanoparticles and/or nanostructured layers the enzymes becomes entrapped within CP-layer. Applicability of CPs in the design of molecularly imprinted polymer based electrochemical sensors [5] will be discussed.

CPs-based nanoparticles and nanostructured layers are suitable for the design of bioelectrochemical devices.

### References

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