RESEARCH AREAS

a) Polymers
b) Ceramics
c) Metals
d) Micro- and nano-structures
e) Environmental protection

a) The research in *polymer chemistry and technology* concentrates on the various forms of cellulose (cotton, hemp, wood) which is the most commonly available renewable material in the nature, on understanding the properties of the cellulose products, and on the modifications of the cellulose for various purposes and functions up to changing its fibrous character to gels. The research area also includes technical and innovative synthetic materials and degradation of plastics.

b) Technical ceramics and the various fibre (glass, metal, synthetic, carbon) reinforced composites are more and more widely applied. The study of their macro- and micro-structures helps to optimize their properties according to the needs of the application areas.

c) Some properties of *metals and advanced alloys* are studied for special applications.

d) *The micro- and nano-technologies* are the results of the most recent technological developments, leading to break-through results in several areas. Within this area the Doctoral School concentrates on the properties of metallic and semiconductor-based systems. Self-cleaning surfaces are interesting for various industrial areas. Functional textiles, containing special materials, in particular micro-capsulated ones, belong to the most up to date areas of development. Basic researches in metal-organic structures and in fullerenes contribute to composite technologies.

e) A serious task of the applications of the technologies is *to avoid environmental pollution* or to neutralize their pollution effects. Important roles are played by the identification of the pollutants and the degradation of the large non-biodegradable molecules to small and biodegradable ones.