

## Preface

This special topic publication presents the research results in the synthesis, properties research and processing technologies investigation for a wide nomenclature of recent functional, structural and building materials.

Properties and synthesis technologies of specialised nanomaterials and nanoparticles that can be widely used in industry and environmental protection are investigated in the first chapter.

The next two chapters are devoted to modern structural materials. Analysis of the mechanical and tribological properties of steel and alloy and treatment technologies is the mainstream for these chapters.

The last chapter of this issue describes the research results in building materials - concrete and mortars. The energy efficiency of concrete, the mechanical evaluation of geopolymers mortars reinforced with alpaca wool fibers, the comparative life cycle analysis between a geopolymers mortar from mining waste and conventional mortar and more are research topics here.

This specialised edition will be useful to many engineers and researchers from machinery, materials development and construction.