Preface

This edition contains a series of scientific and engineering research on actual issues of materials science and treatment technologies in mechanical engineering, and also in the area of Li-ion battery and photovoltaics.

Modern high-efficiency alloys and steels, technologies of their welding, molding processes and surface treatment are the main elements of contemporary machine-building production.

The use of additive technologies can significantly reduce material and raw material costs in small-scale production, provides an expansion of technological capabilities, and also opens up wide opportunities for the application of flexible production lines.

The need for efficient and capacious batteries is difficult to overestimate. In this issue, readers will find two chapters devoted to research in the field of creating electrodes for lithium-ion batteries.

The reader will also be interested in the chapter devoted to photovoltaics, which contains extensive review material on the use of transparent conducting oxides in solar cells.

The issue is intended for engineers and specialists in the field of machinery, electrochemical engineering, and photovoltaics.