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Preface

Thermal analysis is one of the most traditional materials testing methods having unlimited applications in science and technology. Although the basic definition of instrumental techniques falling into this category (i.e. a physical property of a substance is measured as a function of the temperature while the substance is subjected to a controlled temperature program) is still valid, thermal analysis has been developing enormously in its aim of providing analytical and structural information on a great variety of substances from minerals through drugs to polymers.

Simultaneous thermal analysis introduced during the early 1960s had been a real breakthrough in this field. The complexity of analytical problems to be solved, however, imposed high demands on instrument manufactures to develop more sophisticated instruments capable of providing additional information on the heated sample. The advent of commercial mass analyzers and Fourier transform infrared spectrometers has led to a new revolution in thermal analysis instrumentation. The ability to continuously monitor gaseous decomposition products evolved from the sample upon heating increased the amount of information obtained significantly, thereby providing a much more accurate and reliable analysis. Affordable instrument configurations like thermobalances combined with mass spectrometers (TG-MS), or FTIR spectrometers (TG-FTIR) have become quite common.

This special issue aims to collect representative developments and relevant applications of coupled thermoanalytical techniques. The papers appearing in this issue are classified into four groups as follows: minerals, natural and inorganic materials; environmental and industrial applications; complexes and organic materials as well as precursors, coatings and thin films.

Although it was not the aim to provide a complete overview of current progress in this field, we do believe that all the papers appearing in this volume represent areas of substantial interest and reflect important trends in this challenging field.

We wish to thank here all the authors who responded positively to this invitation and submitted their contributions on time. In addition, special thanks are due to the referees for their professional and quick evaluation of the papers and to the Editorial Office for their hard work in organizing and publishing this issue.

May this special issue stimulate further development of instrumentation and applications in the field of thermal analysis!

Guest Editor

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