

Foreword

In 1992 we celebrated the 10th Anniversary ICTA Congress in Hatfield, after more than a quarter of century since the 1st ICTA Conference in Aberdeen, 1965. The 11th Congress in Philadelphia is the first congress since Calorimetry was added to the names of the Confederation and the Congress. Mergence of calorimetry to thermal analysis brings us much excitement and it is the beginning of a new round in thermal analysis and calorimetry in this sense. Mutual stimulation between the two fields is anticipated as seen in most affiliated societies where calorimetrists and thermal analysts have been organized in a united national group.

Other development can be imagined in the new round. A development has begun toward full use of a computer. Around 1970, when thermal analysis boom occurred, a thermal analysis apparatus was generally consisted of a furnace, an instrument, a strip chart recorder or an x-y recorder, and a temperature controller. Thermal analysis application was restricted within this framework of the hardware. Our concept of thermal analysis also seems still to be constrained within this framework. Usually the sample was heated by a predetermined program, and the output signal from the transducer was directly recorded without any processing. The sample response only to this fixed temperature program was observed, irrespective of various sample responses. Computer changed this situation. The controller and the recorder worked independently before, but their functions can be combined within a computer. The output signal can easily be processed in real time. Fourier transformation is one example and will lead us to other possibilities. Another example is controlled rate thermal analysis, in which temperature program is changed interactively with the sample. Though it was invented more than 30 years before, its great potential has not yet been fully explored. It is possible we have other vast possibilities.

Another trend is submicron scale thermal analysis and calorimetry. Technology of scanning tunnel microscope has been migrated into thermal analysis, calorimetry and thermophysical properties measurements, and the results were first set forth in this Congress. This will also change our concept of thermophysical properties, and this will become a powerful tool also for practical purpose. It is really another opening of new round in these fields.

The majority of the participants enjoyed the 11th Congress and got most out of what he or she came here for. This proceedings will also be very useful for majority of thermal analysts and calorimetrists.



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