



# ADVANCED ORGANIC AND FLOW CHEMISTRY APPLICATIONS

**Dr. M. R. Jayapal**

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# **ADVANCED ORGANIC AND FLOW CHEMISTRY APPLICATIONS**

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## **PREFACE**

Editing a textbook at any level is always a challenge. In organic chemistry, exciting new discoveries are being made at an ever-increasing pace. However, students of the subject still arrive in the classroom knowing only what they have been taught, often less. The challenge is to present appropriate review material, present venerable, classic chemistry while dealing with the latest results, and, most importantly, provoke thought and discussion. At the time this book was written, there was a need for an advanced text that incorporated these aspects of our science. The approach taken in this book conveys the message that the underlying theory of organic chemistry pervades the entire science. A good understanding of the fundamentals of organic and physical chemistry will suffice as a foundation for using this textbook to advantage in the last decade, the field of flow chemistry has advanced tremendously and a plethora of applications have been reported in different fields at an unparalleled speed. The characteristics of flow reactors are their exceptionally fast heat and mass transfer. Using so-called micro reactors, virtually instantaneous mixing can be achieved for all but the fastest reactions. Similarly, the accumulation of heat, formation of hot spots, and dangers of thermal runaways can be prevented. Despite the fact that there appears to be ample literature in the flow chemistry space—including several extensive monographs, books and highly cited review articles—there is a lack of suitable textbooks that can be used for teaching purposes and that can explain the fundamentals to newcomers to the field. A complaint often heard from companies is that there are not enough scientists with the unique training and skill sets of a flow chemist, that is, a person having been educated at the inter-face of synthetic chemistry and chemical engineering, with additional expertise—for example—in analytical chemistry and data-rich experimentation/machine learning. Both at the university level and at other research institutions, where scientists have-to familiarize themselves with this rapidly developing field.

It is my hope that your reading of this text will be enjoyable and useful, and that it might convince many of you to specialize in organic chemistry.

**Dr. M. R. Jayapal**

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