Preface

(1) This volume is a collection of thirteen papers written mainly by the invited speakers of the following:

1. International Symposium, "Algebraic Combinatorics (Fukuoka, 1993)."

2. Research Project: "Algebraic Combinatorics," Research Institute for Mathematical Sciences (RIMS), Kyoto University, April 1994–March 1995.

More detailed information concerning these conferences will be given at the end of this preface, including a list of the invited speakers and members of the organizing committees. Many of the papers in this volume are closely connected with the talks given at one or the other of these conferences. Strictly speaking, however, this collection of works does not constitute the proceedings of the above conferences. Each author was asked to contribute a paper with the understanding that this volume is independent of the conferences.

(2) Before stating the philosophy behind editing this volume and describing each of the papers contained herein, let us briefly mention our personal view on algebraic combinatorics. The term 'algebraic combinatorics' has various meanings and has been used in somewhat different ways by different mathematicians. However, it seems that there is a common understanding of the term when interpreted in a wider sense, as is seen in the 1991 Mathematics Subject Classification number 05E and in the journal name *"Journal of Algebraic Combinatorics"*, the first volume of which was published by Kluwer Academic Publishers in 1992.

One of the editors of this volume (Bannai) originated the use of this term in the late 1970's [B1], and he and Tatsuro Ito wrote a book by that title in 1984 [BI1]. In that book the term algebraic combinatorics is defined to mean "combinatorial representation theory" or "group theory without groups". As described there, we believe that the work of Delsarte [D] symbolizes the start of algebraic combinatorics, or at least algebraic combinatorics in the sense we understand it. Admittedly, there are many other important works, both preceding and contemporary with the work of Delsarte [D], which served as the start of algebraic combinatorics, for instance [Bi]. However, Delsarte's way of looking at many combinatorial problems in the framework of association schemes and combining design theory and coding theory in a single framework was a remarkable new approach which has been extremely successful. The