

# Preface

In the fall semester of 1981/82 Professor A. Bialynicki-Birula from the University of Warsaw was guest professor at the mathematics department at the University of Notre Dame. He gave a course entitled "Algebraic group actions on varieties". In conjunction with his visit, Professors J. B. Carrell, C. W. Curtis, J. E. Humphreys, B. Parshall and B. Weisfeiler came for a week each and presented survey lectures on topics in the theory of algebraic groups. In view of the superb quality of both the course and the surveys, it was decided to make them available to a wider mathematical audience. This is the *raison d'être* of this book. Due to political upheavals in Poland at the time, it was impossible for Professor Bialynicki-Birula to include a survey on the material of his lectures. This is most unfortunate, of course, and rather ironic for it was Professor Bialynicki-Birula's course which served as catalyst for this volume.

On behalf of our colleagues of the Mathematics Department of the University of Notre Dame, we wish to thank both the National Science Foundation and Professor O. T. O'Meara, Provost of the university, for their