Preface to the Present Volume

A Symposium on "Galois groups and their representations" was held at Nagoya University during the week of December 14–18, 1981, and was financed by the Japanese Ministry of Education, Science and Culture. There were 19 one hour lectures (some of them being series lectures) by 12 speakers, and other participants.

The program centered around the structure and the representations of the Galois groups of local or global fields including higher dimensional fields. Due to the restriction of the scale of the Symposium, it was limited to the following topics.

Expository lectures (A1) On the recent results of U. Jannsen and K. Wingberg on the structure of the absolute Galois group of p-adic fields, starting with a lecture on the preceding works by Šafarevič, Iwasawa, Demuškin, Koch, etc. (Hiroo Miki, Keiichi Komatsu).

(A2) Survey talks on the structure, p-adic representations, and l-adic representations of local or global Galois groups (Yasutaka Ihara, Kazuya Kato).

Lectures on original results (B1) Abelian varieties, modular forms, l-adic representations and zeta functions (Hiroyuki Yoshida, Takayuki Oda, Masami Ohta, Tomio Kubota).

(B2) p-adic Hodge-Tate decomposition—a recent work of S. Bloch, O. Gabber and K. Kato (K. Kato).

(B3) Structure of unramified Galois extensions, of function fields of characteristic p (Shoichi Nakajima, Y. Ihara, Hidenori Katsurada), of some number fields of infinite degree (Kôji Uchida).

(B4) Two dimensional classfield theory and K-groups (K. Kato, Shuji Saito).

We present here those papers which have developed from these lectures, including two expository papers on (A1). Unfortunately, we could not obtain papers from H. Yoshida (B1), K. Kato (B2), and H. Katsurada (B3) for this volume. Among them, the results presented by Yoshida already appeared in the Journal of the Faculty of Science, the Univ. of Tokyo, IA 28 (1981); pp. 633–650 ("Hecke characters and models of abelian varieties with complex multiplication"). We hope that the other two works will also be published soon. Instead, we were able to include a new paper by Kato on residue homomorphisms in Milnor K-theory which is closely related to (B4).