

PREFACE

The central theme of this book is an invariant attached to an ideal class of a totally real algebraic number field. Using this invariant, we can construct the Stark-Shintani units and the periods of abelian varieties with complex multiplication simultaneously. These periods were studied by Shimura and he crystallized them as the period symbol. The highlight of this book is the construction of the absolute CM-period symbol and the description of the remarkable properties of this symbol.

I planned to write this book in 1997 after getting a substantial part of the results in chapters I, II, III and V. My motivation was twofold: One was to present the results and conjectures in a systematic and precise form convenient for further research. Second was to organize the material to make it accessible to graduate students providing many illustrative examples. I benefitted from lecturing on the subject at several universities during these years, and the experience is incorporated into the presentation of this book. I would like to thank Professors Jacques Tilouine and Michael Harris who arranged my stay in Paris for two months in 1999, during which time I could draft chapters II and III. Finally I would like to thank Professor Goro Shimura for his extremely useful advice and encouragement.

Kyoto, June 2003.

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