

Preface

From the beginning of the 1980's, Grothendieck's *Esquisse d'un Programme* triggered tremendous developments in number theory and arithmetic geometry, which aim at reformulating various difficult open problems in homotopy theoretical terms in order to have a new approach to solving them. Tackling those questions with group theoretical methods addresses various problems concerning Galois groups of number fields (and more general fields) and their representations, and extends to the studies of polylogarithms and multiple zeta values, motives, rational points on arithmetic varieties, and effectiveness questions in arithmetic geometry.

The growing interest in this new point of view is reflected in very intensive and extensive research, and the well-attended and very successful events organized around this area of investigation. The activity in October 2010 in Kyoto focused on Grothendieck's Program thematically followed the semester-long *NAG Programme* held at the Isaac Newton Institute, Cambridge, UK, from July to December 2009.

The Kyoto activity in October 2010 consisted of two parts: a one-week public workshop (October 25–30) together with a satellite closed meeting (October 19–24 participated by invited experts) prior to it. The public part was promoted by the Mathematical Society of Japan (MSJ), and both parts were set up under the auspices of the Research Institute for Mathematical Sciences (RIMS), Kyoto University, Japan.

The first part was the *Galois Theoretic Arithmetic Geometry* meeting which took place at the International Institute for Advanced Studies (IIAS) and in the Keihanna Plaza Hotel, in a suburb of Kyoto. It was designed as one of the RIMS camp-style seminars of 2010. There were forty-nine participants (including twenty-five from abroad), who shared sixteen scheduled research talks together with several elastic slots called “programme du jour” and “night sessions” for spontaneous expositions and discussions. The organizers of this meeting were Hiroaki Nakamura (Chair), Florian Pop, Leila Schneps, Akio Tamagawa and Yuichiro Hoshi.

The second part of the activity was the Joint MSJ-RIMS Conference *Development of Galois–Teichmüller Theory and Anabelian Geometry*, which took place at the RIMS in Kyoto. There were one hundred and seven participants (including thirty-eight from abroad), and twenty-two lectures, including both survey talks and research presentations. This conference was organized by Hiroaki Nakamura (Chair), Florian Pop, Leila Schneps and Akio Tamagawa. It was designed as the 3rd MSJ-SI