On Mikio Sato's works related to automorphic forms

—history and later developments—

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(*Abstract*)

Professor Mikio Sato (1928/4/18~ 2023/1/09) had strong interest also in number theory, including that of automorphic forms, especially on (i) the Ramanujan-Petersson conjecture and on (ii) what is later called the Sato-Tate conjecture. Sato's break-through works on these subjects were done within two years (1961~63). Although unpublished, they strongly motivated later works by others which finally lead to an affirmative solution of each of these conjectures. And because unpublished, some of us, including myself who was then a graduate student, feel obliged to pass the essence of what they have learned from Sato to the next generation. This is my first motivation for having raised hand to be a pinch-hitter . After some hesitations I decided to focus mainly on (ii) , because my interest on (ii) is much more than historical.

My second motivation (also added in this *abstract* to draw attention of non-participant readers) is related to a circumstance that the corresponding written versions are still sleeping. They are the two commentaries on (i) and (ii), asked for and written by myself, and accepted for publication in 2020. Here, by publication, I mean a planned Volume of Collected Works of Mikio Sato by a world-wide publisher. A characteristic feature of Sato's case is that he left several important works unpublished and hence the corresponding commentaries were asked for this Volume and were contributed. I should add that the number-theory related is just a small part. Until publication, these commentaries are not directly accessible. This is different from the usual Collected Papers. I strongly hope that this Volume containing such commentaries as a characteristic part, be published *in time* . I feel that a generation-gap can be fatal for the Volume to remain vivid as a legend.