Howe correspondence between Harish-Chandra series

Abstract:

Let \( F_q \) be a finite field with \( q \) elements and odd characteristic. A pair \( (G, G_t) \) of mutually centralized reductive subgroups of \( \text{Sp}_{2n}(F_q) \) is called a reductive dual pair. By means of the Weil representation of \( \text{Sp}_{2n}(F_q) \), Roger Howe introduced a correspondence \( \Theta : \mathbb{R}(G) \to \mathbb{R}(G_t) \) between the category of complex representations of these subgroups. Here we discuss how this correspondence relates the Harish-Chandra series of \( G \) to those of \( G_t \). If time allows, we will discuss how this correspondence can be expressed as a correspondence between unipotent Harish-Chandra series.