Bi-overline{mathbb{Q}}-structure on Shimura Varieties and Quadratic Relations among Holomorphic CM Periods

Speaker:Ziyang Gao
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Time: Thu., Jan. 4th, 16:00-17:00PM

Venue:Room 102, SCMS

Abstract: The goal of this talk is to propose a possible framework to study quadratic relations among holomorphic periods of CM abelian varieties. We define, for each Shimura variety and a CM point, a bi-$\overline{\mathbb{Q}}$-structure on the tangent space. Then we explain that in the case of the Siegel moduli variety, the numbers comparing the two $\overline{\mathbb{Q}}$-structures are precisely the products of the holomorphic periods of the CM abelian varieties parametrized by the CM point (up to $2\pi i$). Next we propose a hyperbolic analytic subspace conjecture, which is the analogue of Wüstholz's analytic subgroup theorem in this context, and explain why it implies the desired consequence on the quadratic relations among these holomorphic CM periods. This is joint work with Emmanuel Ullmo and (partially with) Andrei Yafaev.