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Department of Mathematics and Computer Science

Colloquium

Kudla-Rapoport conjecture at bad reduction primes

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Abstract:

The Kudla-Rapoport conjecture is a local analogue of arithmetic Siegel-Weil formula which relates arithmetic intersections of special cycles with derivatives of local densities. The original conjecture was formulated for unitary Rapoport-Zink space over unramified primes with good reduction and proved by Chao Li and Wei Zhang. However, it is a mysterious problem for a long time to formulate a precise conjecture when the RZ has bad reduction. In this talk, I will motivate the original Kudla-Rapoport conjecture first and explain how we can modify the original conjecture to incorporate the bad reduction cases. Then I will talk about the proof strategy and highlight some striking new phenomena in the bad reduction cases. If time permitted, I would also mention some speculation and progress for the orthogonal case. This talk is based on several joint works with a few collaborators, including Sungyoon Cho, Chao Li, Yu Luo, Yousheng Shi, Tonghai Yang, Zhiyu Zhang and Baiqing Zhu.

4 – 5pm
Wednesday, September 25, 2024
Room 204, Smith Hall