

## Darmon points on modular abelian varieties over totally real fields

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Let  $A$  be a modular abelian variety over a totally real field  $F$  and let  $K/F$  be a quadratic extension. If  $K/F$  is totally imaginary, the theory of complex multiplication provides a construction of certain special points on  $A$ . These so-called *Heegner points* give rise to partial approaches to the Birch and Swinnerton-Dyer conjecture.

In this talk, we present new conjectural constructions of special points on  $A$  attached to non-CM extensions  $K/F$ . Such constructions generalize [1], [2], [3], [4] and the classical construction of Heegner points. We predict the Galois action on such points, called *Stark-Heegner or Darmon points*, and its connection with the Birch and Swinnerton-Dyer conjecture. Our conjectures are supported by many numerical evidence.

### References

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