

The integrality of modular symbols and Kato's zeta elements

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Modular symbols are certain integrals of modular forms along paths from cusp to cusp in the upper half plane. It is known that they are rational multiples of periods. I would like to discuss first a criterion for when they are an integral multiple in case the modular form corresponds to an elliptic curve over \mathbb{Q} . As an application one can show that certain very complicated “zeta elements” by Kato are integral, too. This has direct application to the Birch and Swinnerton-Dyer conjecture.