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On Calabi-Yau threefolds of CM-type

The first known examples of elliptic curves satisfying the Birch and Swinnerton-Dyer conjecture were elliptic curves with complex multiplication. With this in mind, one may try to study the Beilinson-Bloch conjecture for (rigid) Calabi-Yau threefolds by first examining (rigid) Calabi-Yau threefolds of CM-type.

We will discuss an elementary construction of such threefolds (over the complex numbers) towards a classification up to birational equivalence, as well as the limits of this approach and an expected classification. We will also briefly mention how, specifically, the CM-type allows us to achieve arithmetic results.