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## Theorem (T. Yamamoto - S)

$\overline{\Gamma(f)}$  forms a codim. 2 cycle of closed support in twisted coefficients in  $B$ , and

$$[\overline{\Gamma(f)}]^* \in H^2(B; \mathbb{Z})$$

coincides with the first  
Miller - Morita - Mumford

class  $e_1(\pi)$  of  $\pi: E \rightarrow B$ .