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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

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Polylogarithmic identities in cubical higher Chow groups

The algebraic K-groups $K^{(m)}_{2m-1}(F)_{\mathbb{Q}}$ (tensored with $\mathbb{Q}$) of a field F are known to be isomorphic to Bloch's higher Chow groups $CH^m(F, 2m-1)_{\mathbb{Q}}$ and conjectured to be isomorphic to the Bloch groups $B_m(F)_{\mathbb{Q}}$ of Bloch ($m = 2$) and Zagier ($m > 2$). For $m = 2$ we realize the isomorphism $B_2(F)_{\mathbb{Q}} \to CH^2(F, 3)_{\mathbb{Q}}$ by proving Abel's 5-term relation for the dilogarithm in $CH^2(F, 3)_{\mathbb{Q}}$ among certain distinguished cycles given by Totaro. We also shed some light on the relation between $B_3(F)_{\mathbb{Q}}$ and $CH^3(F, 5)_{\mathbb{Q}}$ by proving further identities corresponding to functional equations of the trilogarithm.