

# Elliptic units above fields with exactly one complex place

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## **Abstract:**

This talk will follow the talks given by Pierre Charollois and Luis García. I will show how one may adapt their construction of conjectural elliptic units for complex cubic fields to higher degree fields with exactly one complex place using the collection of multiple elliptic Gamma functions of Nishizawa. I will construct geometric variants of these functions enjoying transformation properties under an action of  $SL_d(\mathbb{Z})$  for  $d \geq 2$  which yield a  $(d-2)$ -cocycle for  $SL_d(\mathbb{Z})$ . I will explain how to produce conjectural units in abelian extensions of a degree  $d$  field with exactly one complex place using these geometric functions in the spirit of Hilbert's 12th problem.