

# 九大代数学セミナー

日時 2018年6月15日(金) 16:00-17:00

場所 九州大学伊都キャンパス ウエスト1号館5階 C-512 中講義室

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講演者: Nils Matthes 氏 (九州大学)

- “An algebraic characterization of the Kronecker function”

- In this work on elliptic functions, Kronecker introduced a meromorphic function  $F_\tau(u, v)$  of two complex variables  $u$  and  $v$  (with  $\tau$  in the upper half-plane) that can be expressed a quotient of Jacobi theta functions. About a century later, the function  $F_\tau(u, v)$  was rediscovered by Zagier who demonstrated its central role in the context of periods of modular forms for  $\Gamma := \mathrm{PSL}_2(\mathbb{Z})$ .

The Kronecker function satisfies a three-term functional equation, the “Fay identity”, which can be interpreted in terms of the cohomology of  $\Gamma$ . We show that, conversely, any solution to the Fay identity which is meromorphic in a small neighborhood of  $(0, 0) \in \mathbb{C}^2$  belongs to a five-parameter family of deformations of  $F_\tau(u, v)$ .

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