

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 39 (1993)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: JACOBI FORMS AND SIEGEL MODULAR FORMS: RECENT RESULTS AND PROBLEMS
Autor: Kohnen, Winfried
Kapitel: 1.2 Problems
DOI: <https://doi.org/10.5169/seals-60416>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 18.04.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

series (6). Recently, Krieg [24] gave a more elementary proof of (some of) the results of [38] using well-known properties of Epstein zeta functions. However, it is clear from the Γ -factors and the type of the functional equations that for $n > 2$ there cannot be any direct connection between the series studied in [24, 38] and spinor zeta functions.

1.2 PROBLEMS

i) Suppose that k is even. If F is a non-zero Hecke eigenform in $S_k(\Gamma_2)$, is $\phi_1 \neq 0$? (This question was already asked in [33].) The answer is positive for $k \leq 32$ as numerical computations due to Skoruppa [35] show. Note that by Theorem 2 a positive answer gives a new proof for the analytic continuation and the functional equation of $Z_F(s)$.

ii) Let F be a Hecke eigenform in $S_k(\Gamma_2)$. The only critical point of $Z_F(s)$ in Deligne's sense is $s = k - 1$, i.e. the center of symmetry of the functional equation as is easily checked. Conjecturally therefore $Z_F(k - 1)$ should be equal to the determinant of a "period matrix" times an algebraic number (one may suppose that k is even since otherwise $Z_F(k - 1) = 0$ as follows from the sign in the functional equation). To the author's knowledge, nothing so far in this direction has been proved. Could Theorem 2 eventually be useful in this context?

As a side remark, let us mention here that Böcherer [4] motivated by Waldspurger's results [37] about the central critical values of quadratic twists of Hecke L -functions of elliptic Hecke eigenforms, for k even has conjectured that the central critical value of the twist of $Z_F(s)$ by a quadratic Dirichlet character of conductor $D < 0$ should be proportional to the *square* of

$\sum_{\{T > 0\} / \sim, \text{disc } T = D} a(T)$ where $a(T)$ are the Fourier coefficients of F and the

sum is over a set of Γ_1 -representatives of positive definite integral binary quadratic forms T of discriminant D . This conjecture is true if F is in the Maass space as follows from Theorem 2 in §2 in connection with Waldspurger's results, cf. [4]. The conjecture when generalized to level > 1 is also true if the corresponding form has weight 2 and is the Yoshida lift of two elliptic cusp forms [6].

iii) Let F be a cuspidal Hecke eigenform and assume that F is in $S_k^*(\Gamma_2)^\perp$ if k is even. Does the function $D_{F,F}(s)$ have any intrinsic arithmetical meaning? (This question was already asked in [33], too; note that $D_{F,F}(s)$ for F as above cannot be proportional to $Z_F(s)$ since $D_{F,F}(s)$ has a pole at $s = k$ while $Z_F(s)$ is holomorphic there, cf. §2). For some numerical computations in this direction in the case $k = 20$ (the first case where $S_k^*(\Gamma_2)^\perp \neq \{0\}$) we refer to [23].