

**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:** Introduction  
**DOI:** <https://doi.org/10.5169/seals-60416>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. 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. [Siehe Rechtliche Hinweise.](#)

### **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. [Voir Informations légales.](#)

### **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. [See Legal notice.](#)

**Download PDF:** 22.12.2024

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

## JACOBI FORMS AND SIEGEL MODULAR FORMS: RECENT RESULTS AND PROBLEMS

by Winfried KOHNEN

### INTRODUCTION

In the present paper we would like to describe some recent developments how Jacobi forms can be used to study Siegel modular forms of genus 2 and what problems arise in this way. After a preliminary section on Siegel modular forms and Jacobi forms (§ 1) which mainly serves to fix some notation, we shall discuss the so called Maass space in § 2. We shall then study relations between Jacobi forms and spinor zeta functions of Hecke eigenforms of genus 2 (§ 3) and finally in § 4 will indicate how Jacobi forms can be used to give estimates for Fourier coefficients of Siegel cusp forms.

Sections 2-4 are divided into two parts: part one describes known results while part two gives some open problems.

We do not go here into any more intrinsic properties of Jacobi forms (as e.g. the trace formula or relations to modular forms of integral weight) nor discuss any representation-theoretic aspects of the theory. For good surveys, we refer to [33, 36] for the first and to [3] for the second topic.

### § 1. PRELIMINARIES ON SIEGEL MODULAR FORMS AND JACOBI FORMS

#### 1.1. SIEGEL MODULAR FORMS OF GENUS 2

We write  $\mathcal{H}_2$  for the Siegel upper half-space of genus 2. The natural action of  $\mathrm{Sp}_2(\mathbf{R})$  on  $\mathcal{H}_2$  is denoted by

$$(M, Z) \mapsto M \langle Z \rangle := (AZ + B)(CZ + D)^{-1}$$

$$\left( M = \begin{pmatrix} A & B \\ C & D \end{pmatrix} \in \mathrm{Sp}_2(\mathbf{R}), \quad Z \in \mathcal{H}_2 \right).$$

We put  $\Gamma_2 := \mathrm{Sp}_2(\mathbf{Z})$  and for  $k \in \mathbf{Z}$  denote by  $M_k(\Gamma_2)$  the space of Siegel modular forms of weight  $k$  on  $\Gamma_2$ , i.e. the space of holomorphic func-