

Auffallender Weise hat eine so wichtige Function noch keinen andern Namen, als den der Transcendente Θ , nach der zufälligen Bezeichnung, mit der sie zuerst bei *J a c o b i* erscheint, und die Mathematiker würden nur eine Pflicht der Dankbarkeit erfüllen, wenn sie sich vereinigten ihr *J a c o b i*s Namen beizulegen, um das Andenken des Mannes zu ehren, zu dessen schönsten Entdeckungen es gehört, die innere Natur und hohe Bedeutung dieser Transcendente zuerst erkannt zu haben.

from: L. DIRICHLET: Gedächtnisrede auf C.G.J. JACOBI

Preface

The Jacobi group is a semidirect product of a symplectic group with a Heisenberg group. Its importance *prima facie* stems from the fact that it sets the frame to treat theta functions and elliptic and abelian functions. Up to now, most work concerning this group has been done for the simplest case “of degree one”, where the symplectic group is simply $SL(2)$ and the Heisenberg group is a three parameter nilpotent group. The Jacobi group, whose theory is intensively interwoven with that of the metaplectic group, is, together with the Heisenberg group, the most evident example for a non-reductive group. This treatise is meant to show how the general theory of automorphic forms for reductive groups extends by some slight alterations to this first more general example. The reader will see that a lot of the following may easily be extended to the higher degree case of a semidirect product of a symplectic group $Sp(n)$ with a corresponding Heisenberg group. We were tempted to do this, but as the generalizations are sometimes fairly easy on the one hand, and as the degree-one case has special features, e.g. concerning the cusp conditions, on the other hand, we restrict ourselves to this case, denoted G^J , here.

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