

# Table of Contents

<b>Introduction</b> .....	1
<b>1 Vector valued modular forms for the metaplectic group</b> ...	15
1.1 The Weil representation .....	15
1.2 Poincaré series and Eisenstein series .....	19
1.2.1 Poincaré series .....	19
1.2.2 The Petersson scalar product .....	22
1.2.3 Eisenstein series .....	23
1.3 Non-holomorphic Poincaré series of negative weight .....	27
<b>2 The regularized theta lift</b> .....	39
2.1 Siegel theta functions .....	39
2.2 The theta integral .....	46
2.3 Unfolding against $F_{\beta,m}$ .....	54
2.4 Unfolding against $\Theta_L$ .....	57
<b>3 The Fourier expansion of the theta lift</b> .....	63
3.1 Lorentzian lattices .....	63
3.1.1 The hyperbolic Laplacian .....	72
3.2 Lattices of signature $(2, l)$ .....	73
3.3 Modular forms on orthogonal groups .....	84
3.4 Borcherds products .....	87
3.4.1 Examples .....	91
<b>4 Some Riemann geometry on <math>O(2, l)</math></b> .....	95
4.1 The invariant Laplacian .....	95
4.2 Reduction theory and $L^p$ -estimates .....	103
4.3 Modular forms with zeros and poles on Heegner divisors .....	112
<b>5 Chern classes of Heegner divisors</b> .....	119
5.1 A lifting into the cohomology .....	125
5.1.1 Comparison with the classical theta lift .....	135
5.2 Modular forms with zeros and poles on Heegner divisors II ...	137
<b>References</b> .....	141

<b>Notation</b> .....	145
<b>Index</b> .....	151

<http://www.springer.com/978-3-540-43320-0>

Borcherds Products on  $O(2,1)$  and Chern Classes of  
Heegner Divisors

Bruinier, J.H.

2002, VIII, 156 p., Softcover

ISBN: 978-3-540-43320-0