

A restricted Epstein zeta function and the evaluation of some definite integrals

Habib Muzaffar (hbmuzaff@herod.uwaterloo.ca)

University of Waterloo

Department of Pure Mathematics

Waterloo, ON N2L 3G1

Canada

Abstract. We define a restricted Epstein zeta function corresponding to indefinite binary quadratic forms and obtain a formula which is an analogue of the Chowla-Selberg formula for genera. We then use our formula to explicitly evaluate some very unusual definite integrals. The nature of these integrals is such that it is highly unlikely that they can be evaluated by conventional methods.

