



**Nadya Askaripour** (naskarip@uwo.ca), University of Western Ontario, Department of Mathematics, London ON N6A 5B7, Canada, *Some Hilbert spaces of holomorphic  $k$ -differentials and Poincare series map.*

ABSTRACT. Let  $S$  be a hyperbolic Riemann surface, and  $L$  be a closed subset of  $S$ , and  $k > 1$  is an integer. We study spaces of integrable and bounded holomorphic  $k$ -differentials on  $S - L$ , which are Banach spaces, and for a special norm we will have Hilbert spaces. Also the main result will provide a description of the kernel of the

Poincare series map, which is a surjective, linear map between two spaces. This is a joint work with T. Foth.