Ozlem Imamoglu\* (ozlem@math.ethz.ch), Department of Mathematics, ETH Zurich, CH-8092 Zurich, Switzerland, and Cormac O'Sullivan (cormac12@juno.com), Department of Mathematics, Bronx Community College, New York, NY 10453. On 2nd order Poincare series.

Following Petersson, we study the parabolic, hyperbolic and elliptic expansions of holomorphic cusp forms and the associated Poincaré series. We show how these ideas extend to the space of second-order cusp forms. (Received September 19, 2007)