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Niky Kamran* (nkamran@math.mcgill.ca), Department of Mathematics and Statistics, McGill University, 805 Sherbrooke Street West, Montreal, Quebec H3A 2K6, Canada. *Green's function for the Hodge Laplacian on some classes of Riemannian and Lorentzian symmetric spaces.*

We compute the Green's function for the Hodge Laplacian on the symmetric spaces $M \times \Sigma$, where M is a simply connected n -dimensional Riemannian or Lorentzian manifold of constant curvature and Σ is a simply connected Riemannian surface of constant curvature. Our approach is based on a generalization to the case of differential forms of the method of spherical means and on the use of Riesz distributions on manifolds. The radial part of the Green's function is governed by a fourth order analogue of the Heun equation. This is joint work with Alberto Enciso (Universidad Complutense and ETH). (Received February 09, 2009)