1027-58-173   **Ivan G Avramidi*** (`iavramid@nmt.edu`), Department of Mathematics, New Mexico Tech, 801 Leroy Place, Socorro, NM 87801. *Heat Kernel on Homogeneous Bundles over Symmetric Spaces.*

We study the heat kernel asymptotics of Laplacians acting on sections of homogeneous vector bundles over symmetric spaces. By using an integral representation of the heat semi-group we find a formal solution for the heat kernel diagonal that gives a generating function for the whole sequence of heat invariants. We show explicitly that the obtained formal result correctly reproduces the first non-trivial heat kernel coefficient as well as the exact heat kernel on two-dimensional sphere S^2 and the hyperbolic plane H^2. (Received February 26, 2007)