

# On a class of bounded and compact higher dimensional kernel operators

Usman Ashraf<sup>1</sup>, Muhammad Asif<sup>1</sup>, Alexander Meskhi<sup>1,2</sup>

<sup>1</sup> School of Mathematical Sciences

GC University, Lahore Pakistan.

E-mail: [gondalusman@yahoo.com](mailto:gondalusman@yahoo.com)

[asifmaths@yahoo.com](mailto:asifmaths@yahoo.com)

[meskhi@rmi.acnet.ge](mailto:meskhi@rmi.acnet.ge)

<sup>2</sup> A. Razmadze Mathematical Institute, Georgian Academy of Sciences,  
Tbilisi, Georgia.

**Abstract.** Necessary and sufficient conditions on a weight function  $v$  guaranteeing the boundedness/compactness from  $L^p$  to  $L^q_v$ ,  $1 < p \leq q < \infty$ , of integral operators with positive kernels on homogeneous groups are established. Behaviour of singular numbers of these operators are also studied.

**2000 Mathematics Subject Classification:** 26A33, 42B25, 43A15, 46B50, 47B10, 47B34.

**Keywords:** Operators with positive kernels, potentials, homogeneous groups, trace inequality, weights, singular numbers of kernel operators.