



Banach J. Math. Anal. 2 (2008), no. 2, 150–162

BANACH JOURNAL OF MATHEMATICAL ANALYSIS

ISSN: 1735-8787 (electronic)

<http://www.math-analysis.org>

MIXED MEANS FOR CENTERED AND UNCENTERED AVERAGING OPERATORS OVER SPHERES AND RELATED RESULTS

I. PERIĆ

This paper is dedicated to Professor Josip Pečarić

Submitted by M. S. Moslehian

ABSTRACT. Mixed-mean inequalities for integral power means over centered and uncentered spheres are proved. Therefrom we deduce the Hardy type inequalities for corresponding averaging operators. Moreover, we discuss estimates related to the spherical maximal functions.

FACULTY OF FOOD TECHNOLOGY AND BIOTECHNOLOGY, UNIVERSITY OF ZAGREB, PIEROT-
TIJEVA 6, 10000 ZAGREB, CROATIA.

E-mail address: iperic@pbf.hr

Date: Received: 30 April 2008; Accepted: 5 July 2008.

2000 Mathematics Subject Classification. Primary 26D10; Secondary 26D15.

Key words and phrases. Mixed means, integral power means, power weights, centered and uncentered spheres, polar coordinates, Hardy's inequality, Carleman's inequality, spherical maximal functions, lower bounds for operator norms.