

Banach J. Math. Anal. 5 (2011), no. 1, 1–18

BANACH JOURNAL OF MATHEMATICAL ANALYSIS ISSN: 1735-8787 (electronic) www.emis.de/journals/BJMA/

## GENERALIZATION OF AN INTEGRAL FORMULA OF GUESSAB AND SCHMEISSER

## SANJA KOVAČ $^{1\ast}$ AND JOSIP PEČARIĆ $^2$

Communicated by F. Kittaneh

ABSTRACT. Weighted version of two-point integral quadrature formula is obtained using w-harmonic sequences of functions. Improved version of Guessab and Schmeisser's result is given with new integral inequalities under various regular conditions. As special cases, the generalizations of quadrature formulae of Gauss type are established.

 $^1$  Faculty of Geotechnical Engineering, University of Zagreb, Hallerova Aleja 7, 42000 Varaždin, Croatia.

 $E\text{-}mail\ address:\ \texttt{skovac@gfv.hr}$ 

 $^2$  Faculty of Textile Technology, University of Zagreb, Pierottijeva 6, 10000 Zagreb, Croatia.

E-mail address: pecaric@hazu.hr

Date: Received: 1 December 2009; Accepted: 4 April 2010.

\* Corresponding author.

<sup>2010</sup> Mathematics Subject Classification. Primary 25D15; Secondary 65D30, 65D32.

Key words and phrases. Weight function, w-harmonic sequences of functions, quadrature formula, Gauss formula, Legendre–Gauss, Chebyshev–Gauss, Hermite–Gauss, inequality, sharp constants, best possible constants, two-point quadrature formula.