

Ann. Funct. Anal. 1 (2010), no. 1, 36–40

ANNALS OF FUNCTIONAL ANALYSIS

ISSN: 2008-8752 (electronic)

URL: www.emis.de/journals/AFA/

LOCAL OPERATORS AND A CHARACTERIZATION OF THE VOLTERRA OPERATOR

JANUSZ MATKOWSKI¹

Communicated by J. Chmieliński

ABSTRACT. We consider locally defined operators of the form $D^n \circ K$ where D is the operator of differentiation and K maps the space of continuous functions into the space of n-times differentiable functions. As a corollary we obtain a characterization of the Volterra operator. Locally defined operators acting in the space of analytic functions are also discussed.

E-mail address: J.Matkowski@wmie.uz.zgora.pl

¹ FACULTY OF MATHEMATICS, COMPUTER SCIENCE AND ECONOMETRY, UNIVERSITY OF ZIELONA GÓRA, SZAFRANA 4A, PL-65-516 ZIELONA GÓRA, POLAND; INSTITUTE OF MATHEMATICS, SILESIAN UNIVERSITY, BANKOWA 14, PL-40-007 KATOWICE, POLAND.

Date: Received: 30 June 2010; Accepted: 17 September 2010.

^{*} Corresponding author.

²⁰¹⁰ Mathematics Subject Classification. Primary 47H30; Secondary 47A67.

Key words and phrases. Nemytskij operator, locally defined operator, superposition operator, Volterra operator, differentiable functions, analytic functions.