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On Fréchet-differentiability of Nemytskij operators acting in Hölder spaces. (English)

Zbl 0724.47041

Glasg. Math. J. 33, No. 1, 1-5 (1991).

The author considers the Nemytskij operator $Fy(t) = f(y(t))$, generated by some continuous real function f , in the Hölder space $H^\nu[a, b]$ ($0 < \nu \leq 1$). He proves that, if f is of class C^1 [resp. C^2], the operator F is continuous [resp. continuously Fréchet differentiable] on $H^\nu[a, b]$. Related work is due, among others, to *R. Nugari* [Glasgow J. Math. 30, 59-65 (1988; Zbl 0637.47035)] and *T. Valent* [Springer Tracts Nat. Philos. 31 (1987; Zbl 0648.73019)]. A parallel study for the non-autonomous case $f = f(t, y)$ will be published by the same author in *Monatsh. Math.* (to appear).

Reviewer: [J.Appell \(Würzburg\)](#)

MSC:

- 47H30** Particular nonlinear operators (superposition, Hammerstein, Nemytskiĭ, Uryson, etc.)
- 46E15** Banach spaces of continuous, differentiable or analytic functions
- 26A16** Lipschitz (Hölder) classes

Cited in **2** Reviews
Cited in **6** Documents

Keywords:

[Nemytskij operator](#); [Hölder space](#)

Full Text: [DOI](#)

References:

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- [2] Nugari, Glasgow Math. J. 30 pp 59– (1988)
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