

Invertibility Of Weakly Gâteaux And Continuously Gâteaux Differentiable Maps Between Banach Spaces

Milen Ivanov*, Jesús A. Jaramillo[†], Sebastián Lajara[‡], Nadia Zlateva[§]

Given a continuous weakly Gâteaux differentiable map $f : X \rightarrow Y$ between Banach spaces, we provide criteria for the existence of a continuous right-inverse map for f . We also establish conditions to guarantee the local invertibility of that map whenever it is continuously Gâteaux differentiable.

*Radiant Life Technologies Ltd., e-mail address: milen@radiant-life-technologies.com

[†]Department of Mathematical Analysis and Applied Mathematics, Complutense University, Madrid, Spain, e-mail address: jaram@mat.ucm.es

[‡]Department of Mathematics, University of Castilla-La Mancha, Albacete, Spain, e-mail address: Sebastian.Lajara@uclm.es

[§]Faculty of Mathematics and Informatics, Sofia University St. Kliment Ohridski, e-mail address: zlateva@fmi.uni-sofia.bg