

Méthodes topologiques en analyse non linéaire:développements récents -
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**Variable exponent Lebesgue and Sobolev spaces on time scales
and their applications**

Joint work with Jean Mawhin and Ewa Skrzypek.

Abstract: We consider Lebesgue and Sobolev spaces with variable exponents on time scales and apply the theory to study the existence of solutions and their regularity to the $p(t)$ -Laplacian Dirichlet problem on a bounded time scale.

Ewa Skrzypek, Katarzyna Szymańska-Dębowska, On the Lebesgue and Sobolev spaces on a time-scale, *Opuscula Math.* 39 (5) (2019), 705–731.

Jean Mawhin, Ewa Skrzypek, Katarzyna Szymańska-Dębowska, Du Bois-Reymond Type Lemma and Its Application to Dirichlet Problem with the $p(t)$ -Laplacian on a Bounded Time Scale, *Entropy* 23 (10), 1352 (2021), 21 pp.