

## Extension theorems dealing with weighted Orlicz-Slobodetskii space

Agnieszka Kałamajska

Faculty of Mathematics, Informatics and Mechanics, University of Warsaw,  
Poland

[kalamajs@mimuw.edu.pl](mailto:kalamajs@mimuw.edu.pl)

*The talk is based on joint works with Raj Narayan Dhara.*

*Session: 39. Contributed talks*

Having given weight  $\rho = \tau(\text{dist}(x, \partial\Omega))$  defined on Lipschitz boundary domain  $\Omega$  and Orlicz function  $R$ , we construct the weight  $\omega_\rho(\cdot, \cdot)$  defined on  $\partial\Omega \times \partial\Omega$  and extension operator  $Ext$  from certain subspace of weighted Orlicz-Slobodetski space  $Y_{\omega_\rho}^{R,R}(\partial\Omega)$  subordinated to the weight  $\omega_\rho$  to Orlicz-Sobolev space  $W_\rho^{1,R}(\Omega)$ . The weight  $\omega_\rho(\cdot, \cdot)$  is independent of  $R$ . This gives the new tool to deal with boundary value problems like:

$$\left\{ \begin{array}{ll} -\text{div}(\rho(x)B(\nabla u(x))) = f & \text{in } \Omega \\ u = g & \text{in } \partial\Omega. \end{array} \right\}$$

with inhomogeneous boundary data provided in the weighted Orlicz setting. Result is new in the unweighted Orlicz setting for general function  $R$  as well as in the weighted  $L^p$  setting.

### References

- [1] R. N. Dhara, A. Kalamajska, *On one extension theorem dealing with weighted Orlicz-Slobodetskii space. Analysis on cube*, preprint available at: <http://www.mimuw.edu.pl/badania/preprinty/preprinty-imat/?LANG=en>.
- [2] R. N. Dhara, A. Kalamajska, *On one extension theorem dealing with weighted Orlicz-Slobodetskii space. Analysis on Lipschitz subgraph and Lipschitz domain*, preprint available at: <http://www.mimuw.edu.pl/badania/preprinty/preprinty-imat/?LANG=en>.
- [3] A. Kalamajska, M. Krbec, *Traces of Orlicz-Sobolev functions under general growth restrictions*, Math. Nachr. 286, No. 7 (2013), 730–742.
- [4] M.-TH. Lacroix, *Espaces de traces des espaces de Sobolev-Orlicz*, J. Math. Pures Appl. 53 (9) (1974), 439–458.