



ADMISSION TO DOCTORAL STUDIES

Session September 2022

Field of doctoral studies: Electrical Engineering

Doctoral supervisor: Prof. Ioan ŞERBAN

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: *Integration of smart PV inverters in prosumer-based microgrids with EV charging stations*

Content / Main aspects to be considered

- *optimal hardware PV (single-phase) inverter*
- *smart control for PV inverter integration in a prosumer-based microgrid*
- *modelling and simulation of the hardware part in a specialised PE software*
- *modelling and simulation smart control*
- *experimental model development*
- *experimental testing.*

Recommended bibliography:

- [1] N. Hatziargyriou, *Microgrids - Architectures and Control*, IEEE Press-Wiley, 2014;
- [2] I. Serban, "Power Decoupling Method for Single-Phase H-Bridge Inverters With No Additional Power Electronics," in *IEEE Transactions on Industrial Electronics*, vol. 62, no. 8, pp. 4805-4813, Aug. 2015. <https://doi.org/10.1109/OPTIM-ACEMP50812.2021.9590017>
- [3] I. Serban, "Improved control method for single-phase inverters with a minimalist power decoupling circuit," *ACEMP-OPTIM 2021*. <https://doi.org/10.1109/TIE.2015.2399274>
- [4] Y. Liu, W. Zhang, Y. Sun, M. Su, G. Xu and H. Dan, "Review and Comparison of Control Strategies in Active Power Decoupling," in *IEEE Transactions on Power Electronics*, vol. 36, no. 12, pp. 14436-14455, Dec. 2021. <https://doi.org/10.1109/TPEL.2021.3087170>

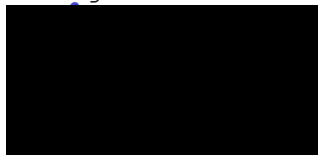
Prerequisites / Remarks:

- Bachelor's degree and/or Master's degree in electrical engineering;
- Knowledge on power electronics (hardware and control);
- Knowledge of programming in C/Python represents an advantage;
- Good command of English ;

Doctoral supervisor,

Prof. Ioan ȘERBAN

Signature



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Coordinator of  
the field of doctoral studies,

Prof. Corneliu MARINESCU

Signature

