



EMC in Power Electronics

Lecturer: Prof. Jean-Luc Schanen, INP Ense3, Laboratoire de Genie Electrique de Grenoble (G2Elab), France

Short description of the lecture (up to 10 sentences):

With very large commutation speed, especially with new wide bandgap semiconductors, Power electronics generates a large amount of electromagnetic disturbances. Outside a converter, the conducted emissions are limited by standards, what imposes the use of an EMC filter. Inside the converter, specific rules must be properly taken into account to avoid self disturbance. This course aims to introduce the basic EMC notions, then presents the EMC filter design, and finally goes inside the switching cell with “EMC eyes”. Illustrations with Pspice simulations will be provided, either by demos or by the student themselves if time is available.

Syllabus of the lecture subjects (enlisted):

1. Introduction to EMC: definition, standards, coupling modes (3h)
2. EMC Filter Design (4h)
 - a. Converter environment: LISN
 - b. EMC Filter topology
 - c. Filter design
 - d. Technological realization
 - e. Imperfections of filter components
3. Design for EMC (8h)
 - a. Interference simulations
 - b. Disturbance Sources
 - c. Interconnection modeling
 - d. EMC of Power Modules



| Terminy wykładów | | | |
|-------------------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------|
| Data | Dzień tyg. | Godzina | Sala |
| 2015-11-16 | Pn | 9.15-12.00 | WEiA E28 |
| 2015-11-17 | Wt | 9.15-12.00 | WEiA E28 |
| 2015-11-18 | Śr | 9.15-12.00 | WEiA E28 |
| 2015-11-19 | Cz | 9.15-12.00 | WEiA E28 |
| 2015-11-20 | Pt | 9.15-12.00 | Laboratorium kompatybilności elektromagnetycznej (EMC) w budynku przy ul. Sobieskiego 7* |

*) parter-korytarzem po prawej stronie