Pitch PhD AEL4
Isolated μ-Power DCDC - AUX

Potential Products:
- AUX for Traction Inverter
- AUX for Charger/Converter
- Automotive Solar DCDC
- Redundant/Parallel LV-Boardnet Architectures

Objectives / Motivation:
- Miniaturization in compliance with insulation requirements (HV-Safety in conjunction with new norm) → from PS-PE
- Compliance with requirements regarding special operating conditions & FuSi requirements (noTi) → from PS-PE
- "Cross-Regulation" for multi-output converters
- PPC-Reduction (MAT Cost-Down by component reduction / req.-refinement; Industrialization concept e.g. via Pick&Place to reduce VA-cost)
- RnD cost reduction by modularization/scaling concept

Rough outline of the work:
- Requirement collection & objective definition
- Research on State of the Art
- μ-Power DCDC research circuit concepts / topology research / topology comparison / transformer concept → inspired by CE
- Concept Evaluation
  - Qualitative evaluation by expert interviews
  - Quantitative (simulation based) evaluation
  - Rating of the μ-Power DCDC circuit concepts and comparison with Benchmarking (commercially solutions from CE-Electronic)
- Development of an integration concept for a modular standardized AUX module (SiP, ASIC, etc.)
- HW setup & Lab demonstration of selected μ-Power DCDC
- Conclusion

Vision: Safe, tiny & low-cost μ-Power DCDC (esp. AUX) for broad product range

AUX = Auxiliary Power Supply / “Hilfsspannungsversorgung”