

**Dr. Ali Al-Abadi** received his B.Sc. and M.Sc. degrees from University of Baghdad, Iraq and the Dr.-Ing degree from Friedrich-Alexander-University, Erlangen, Germany. From 2010 to 2015 he worked as a research assistant and research associate at the same University. He was responsible for industrial projects on vibro-acoustics, thermo-fluids, wind turbines, wind energy and aerodynamics.

Ali joined SGB-SMIT Group located in Regensburg, Germany in 2015 as a senior expert and team leader of the group technology projects. In 2022 he joined Hitachi Energy located in Brilon, Germany as a global senior engineer. His main experiences are sound and vibrations, thermal modelling, losses, and magnetic-field calculations of transformers and sunt reactors.

Ali is an active member of IEEE, DAGA and ASME, and a participant member in CIGRE working groups. He has been publishing, presenting, and reviewing scientific and technical papers in the international conferences and peer reviewed journals. Ali is an active contributor in transformers and wind energy sectors.



#### Projects on power transformers:

- Sound and vibrations,
- Thermo-fluids,
- Magnetic shielding,
- Tank mechanical, vibration, and resonance,
- Steel coredesign, dynamic behavior, and resonance,
- Cost optimization,
- Magnetic field calculation,
- Solid and liquid Insulation materials,
- Losses calculation,
- Calculation of stray flux and induced eddy current in the metallic components,
- Electromagnetic-mechanical-thermal coupling,
- Optimization of transformers and reactors design for minimum losses and sound generation,
- Transformer and Gapped-Core Reactor design,
- Calculation of required clamping pressure,
- Static and dynamic 3D winding short-circuit withstands calculation,
- Mechanical design of tank and cooling system,
- FEM analysis,
- Dynamic thermal modelling,

#### Projects on wind turbines:

- Developing of aerodynamic performance deterministic and evolutionary based optimization methods.
- CFD simulation for aerodynamics and boundary layer characteristics of flow
- Developing experimental setups for aerodynamic investigations.
- Optimization of wind turbine blades for maximum aerodynamic performance under turbulent flow conditions.
- Developing regulation approaches for active control the wind turbine blades.