2 Ph.D. positions

Do you want to do applied research and help to find environmental friendly solutions to fight global warming? Research focus of the high-voltage laboratory is the insulation of high electric field strengths in various applications with novel environmental friendly insulation media. We are a research group at D-ITET with multi-disciplinary backgrounds and are seeking to hire two Ph.D. students with a Master in electrical engineering, physics, material science, or a related subject.

Research Position 1:
Electric power will become even more important in the future. On the one hand to integrate the increasing amounts of energy generated from new renewable source, and on the other hand to achieve efficiency increases (electric mobility, heat pumps, ...). Modern systems use power electronic components and their insulation is stressed by a superposition of alternating voltage and repetitive voltage pulses. This accelerates the ageing and failure of the insulation, but the underlying physical-chemical processes are widely unknown today.

The research topic of the successful candidate will be the creation of novel solid electrical insulation materials under mixed frequency stress for a variety of future applications and their experimental and theoretical investigation.

Research Position 2:
Sulfurhexafluorid (SF₆) is today the most important gas for high-voltage insulation. But, due to its strong global warming potential (23'000 times higher than CO₂), research and development efforts are taken to find alternative gas mixtures. The high-voltage laboratory of ETH Zurich developed methods to identify and characterize novel gases, and developed a model to predict the breakdown voltage in real gas-insulated switchgear geometries. The research topic of the successful candidate will be the experimental and/or theoretical investigation of novel molecules and gas mixtures for application in high-voltage insulation.

Job specification:
You have graduated from a university and received an excellent degree in electrical engineering, physics, material science, or a related subject. You are motivated and interested in working within an interdisciplinary research group. You work systematically and independent, are well organized and can present your results. We offer a challenging and application oriented research work in a great team with ETH salary level 5.

Contact:
Interested candidates can receive further information at www.hvl.ee.ethz.ch or upon request via E-Mail. Applications with complete documents shall be sent to Prof. Christian Franck, cfranck@ethz.ch.