**PhD Project Proposal**

School of Electronics, Electrical Engineering and Computer Science

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| **Proposed Project Title: A Three-Phase High-Frequency Link Grid Connected Converter** |
| **Principal Supervisor: Dr Ahmad Elkhateb Second Supervisor: Prof D John Morrow**  |
| **Project Description:** This project includes design, control, simulation, and hardware implementation for three-phase high-frequency link grid connected converter. Modulation technique will be developed to ensure soft switching at wide range of operations. The aim of this project will be focused on isolated grid connected converters that use high frequency transformers but ensure high efficiency, unity power factor and low total harmonic distortion. The outcome is envisaged to propose a new three-phase high-frequency link converter to meet the challenging requirements of high efficiency, compact size, power rating and system integration with minimum number of components. The methodology of the research will include converter level design and system level integration. A control method will be developed to ensure stable operation during normal and abnormal conditions. MATLAB/PLECS will be used in all device studies, design of control systems and modulation technique. Then, a laboratory scale prototype will be implemented to test the converter, and to validate its performance at system level. |
| **Contact details**Supervisor Name: Dr Ahmad Elkhateb Tel: +44 (0)28 9097 4672QUB Address: 8.10 Ashby Building, Stranmillis Rd, BT9 5AH Email: a.elkhateb@qub.ac.uk  |