**PhD Project Proposal**

School of Electronics, Electrical Engineering and Computer Science

& ECIT Global Research Institute

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| **Proposed Project Title: Secure Wireless Frequency Diverse Array Methods** |
| **Principal Supervisor: Prof Vincent Fusco Second Supervisor: Dr Neil Buchanan** |
| **Project Description:**  In wireless communications there is always a high risk of eavesdroppers reading the signal. Frequency diverse arrays (FDAs) allow the focusing of a microwave beam towards a single point in space allowing both azimuth focusing and range focusing. This makes them uniquely different to any other form of microwave directional antenna which only allows azimuth focusing. Particular emphasis will be placed on the design and demonstration of arrays that can form a secure wireless link.  [1] M. Yao, W. Wu and D. G. Fang, "Frequency Diverse Array Antenna Using Time-Modulated Optimized Frequency Offset to Obtain Time-Invariant Spatial Fine Focusing Beampattern," in IEEE Transactions on Antennas and Propagation, vol. 64, no. 10, pp. 4434-4446, Oct. 2016. https://ieeexplore.ieee.org/document/7522082/ |
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