

Horizon 2020 Marie Skłodowska-Curie Actions Individual Fellowships Call – Expression of Interest

Organisation Details	<i>Organisation Name</i> Tyndall National Institute University College Cork Cork, Ireland tyndall.ie		
Organisation Type	<input checked="" type="checkbox"/> Academic <input type="checkbox"/> Large Enterprise <input type="checkbox"/> SME <input type="checkbox"/> Public Research Organisation	<input type="checkbox"/> Public Body <input type="checkbox"/> NGO <input checked="" type="checkbox"/> Non-Profit <input type="checkbox"/> Other (<i>please specify</i>) <hr/>	
Research Field(s)	<input type="checkbox"/> Chemistry CHE <input type="checkbox"/> Social and Human Sciences SOC <input type="checkbox"/> Economic Sciences ECO <input checked="" type="checkbox"/> Information Science and Engineering ENG <input type="checkbox"/> Environment and Geosciences ENV <input type="checkbox"/> Life Sciences LIF <input type="checkbox"/> Mathematics MAT <input checked="" type="checkbox"/> Physics PHY	Keywords: <ul style="list-style-type: none"> • Software defined networks • Autonomous optical networks • Optical communications • Flexible ROADMs 	
Short Description of the Organisation and the Faculty/Dept./School/Centre	Established with a mission to support industry and academia in driving research to market, Tyndall National Institute is one of Europe's leading research centres in Information and Communications Technology (ICT) research and development and the largest facility of its type in Ireland. Established in 2004 as a successor to the National Microelectronics Research Centre (NMRC founded in 1982) at University College Cork, the Institute employs over 460 researchers, engineers and support staff, with a full-time graduate cohort of 135 students generating over 200 peer-reviewed publications each year. With a network of 200 industry partners and customers worldwide. Hosting the only full CMOS (metal oxide semiconductor) integrated circuit construction, Micro Electronic Mechanical systems (MEMS) and III-V Wafer Semiconductor fabrication facilities and services in Ireland, Tyndall is capable of prototyping new product opportunities for its target industries –		

	<p>electronics, medical devices, energy and communication. Tyndall is a globally leading Institute in its four core research areas of Photonics, Microsystems, Micro/Nanoelectronics and Theory, Modeling and Design. Tyndall is the lead institution for the Science Foundation Ireland funded Irish Photonics Integration Centre (IPIC).</p> <p><u>Photonics Systems Group, Tyndall</u> The Photonic Systems Group is part of the Photonics Research Centre at Tyndall. The major theme of the Photonics Systems research programme is to find new ways to integrate different photonic and electronic technologies to demonstrate greatly enhanced capabilities (e.g. higher speed, capacity, or scalability) of optical communications and other applications, with the primary aim of reducing the overall cost and energy consumption of future full-scale systems. The group typically comprises up to 30 members including senior researchers, postdocs, PhD and Masters students and undergraduate interns with backgrounds in electronic and electrical engineering and physics. Research disciplines include photonic system design, modeling, integration and demonstration; high speed digital signal processing and high speed mixed signal (analog and digital) microelectronic circuit design and test</p>
Short Description of the Research Project/Topic	<p>Optical networks today is moving from a static tier structure (including divisions between access, metro, long-haul), to a flexible and multi-input/multi-output (MIMO) architecture due to 5G. High capacities should be provided anywhere at any time, and the infrastructure must be able to scale, adapt and respond fast enough to user demands. Software defined networks (SDN) provide disaggregation of the network functions, between data plane and control plane, simplifying management and adapting requests on the go. Ultimately, the entire network should be autonomous, and in Tyndall we envision autonomy and adaptability controlled by SDN all the way to the physical layer.</p> <p>This project aims to focus towards merging software defined networks with the physical layer and adapting the capacity autonomously through software protocols.</p>

Expertise required by the applicant	<ul style="list-style-type: none"> • Essential expertise in: optical networks, physical layer, SDN software (Openflow, Netconf, YANG) and JAVA. • Desirable expertise: high speed measurement instruments (sampling oscilloscopes, OSAs etc), WSS, FPGA and software, and DACs (6bit resolution or more–10Gbit/s minimum)
Career development support offered to fellows	<p>A key component of the career management process is the agreement of professional development plans between individual Post-Doctoral & Senior Post-Doctoral Researchers with their Principal Investigators (PI). Please see http://www.ucc.ie/en/careers/informationforresearchstaff/careerdevelopmentplanning/ and http://www.ucc.ie/en/careers/informationforresearchstaff/professionaldevelopmentplanning/ for more information.</p> <p>At UCC and Tyndall, researchers have responsibility for managing and pursuing their own careers and career development, supported by the Principal Investigator. This is laid down in the Employment and Career Management Structure for Researchers policy doc</p> <p>Researchers in Tyndall also avail from UCC's support services such as the Post-Doctoral Development Hub (https://www.ucc.ie/en/hr/research/devhub/). The Hub has the mission to enrich the professional training experiences and long-range outcomes of our Postdoctoral Researchers by fostering a sense of community, new collaborations through research, innovation, commercial awareness training and career development opportunities. This provides a platform for networking, relevant training (career progression, CVs, interviews, writing grant applications, teaching and learning, amongst many others). UCC also promotes diversity and equality in the workplace, with an interactive Equality and Diversity eLearning programme (LEAD - http://www.leadequalitynetwork.com/) available for all new recruits at induction.</p>
Application procedure	<p>Documents required are CV, a cover letter justifying the application to the role, with detailed information of expertise against the required expertise (examples), and a</p>

	1-page research plan attempt towards the goal of the project. References will also be required.
Contact Person	Dr. Fatima Gunning fatima.gunning@tyndall.ie

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