## RESEARCH INTERESTS

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| * Metamaterials & Plasmonics
 | * High-throughput Material Discovery
 | * Laser switching & processing of materials
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| * Multimaterial Optical Fibres
 | * Photo-tunable materials
 | * Plasma & thermal vapour deposition
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| * Chalcogenide semiconductors
 | * Phase change & Nano-ionics
 | * Neuromorphic Optics
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**Short Bio: Dr Gholipour obtained his PhD from the Optoelectronics Research Centre (ORC) at the university of Southampton in 2012. He was awarded the prestigious EPSRC UK ICT Pioneer Prize for his work on planar chalcogenide optoelectronic and nanophotonic devices during this time. Subsequently he worked on ion-implantation into amorphous semiconductors for carrier-type reversal at the ORC as a Research fellow. This was followed by three years as a Project Leader at the Centre for Disruptive Photonic Technologies (CDPT) at the Nanyang Technological University (NTU), Singapore, focusing on multimaterial fibers and their applications. He subsequently returned to the UK as a Senior Research Fellow at the Optoelectronics Research Centre and the School of Chemistry at the University of Southampton in 2016 to lead the portfolio of activities on material discovery of topological insulators, phase change and epsilon near zero (ENZ) materials for all-dielectric and plasmonic planar and fibre integrated metamaterial applications.**

**He is an expert in chalcogenide semiconductors, multimaterial optical fibres, high throughput material discovery and all-dielectric as well as plasmonic reconfigurable metamaterials and metasurfaces. In all these cases, He is most interested in light-matter interaction with a particular focus on material engineering, optoelectronic switching and sensing phenomena as well as laser, plasma and thermal based fabrication techniques for reconfigurable nanoscale optics, environmental sensing and emerging telecommunication and neuromorphic optics applications.**

**He has pioneered ground breaking new techniques and technologies which are being pursued by a range of researchers and companies around the world. Most notably he is known for the first all-optical phase change metamaterial, chalcogenide photonic synapse, lithography assisted fibre drawing and color tunable perovskite metasurfaces. His work has resulted in >100 peer reviewed journal and conference publications.**

## EMPLOYMENT HISTORY

## Assistant Professor of Photonics Jan 2019 - Present

## Electrical and Computer Engineering Department (ECE), University of Alberta, Canada

## Senior Research Fellow in Metamaterials, Plasmonics & Material Discovery Jan 2016 – Dec 2018

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| Centre for Photonic Metamaterials, Optoelectronics Research Centre (ORC) & School of Chemistry, University of Southampton, United Kingdom |  |
| I was a Project leader within the UK Engineering and Physical Sciences Research Council (EPSRC) funded Programme Grant “The Physics and Technology of Photonic Metadevices and Metasystems” working with Profs Nikolay Zheludev and Brian Hayden. Within this programme I led the portfolio of activities on material discovery of topological insulators, phase change and epsilon near zero (ENZ) materials for all-dielectric and plasmonic planar and fibre integrated metamaterial applications. This work resulted in a multitude of very high impact publications. |
| **Project Leader in Fibre Drawing Nano-manufacturing** Centre for Disruptive Photonic Technologies (CDPT), Nanyang Technological University (NTU), Singapore  |  Apr 2013 – Dec 2015 |
| I worked as a Project leader at NTU, Singapore on an A\*STAR funded "Fibre-drawing nanomanufacturing" project, working with Prof Cesare Soci. The project was a joint UK-Singapore project. I took a major role in successfully leading, coordinating and directing research across multiple teams in different international locations (resulting in over 30 conference publications, 10 journal publications and 1 patent filed).  |
| **Research Fellow in Ion Implantation into Amorphous Semiconductors**Optoelectronics Research Centre (ORC), University of Southampton, United Kingdom | July 2012 – Feb 2013 |
| I worked with Prof Dan Hewak on a UK EPSRC funded project into “Non-eqilibrium doping of amorphous semiconductors” which centred around design and fabrication of various optoelectronic devices taking advantage of ion implantation into amorphous chalcogenides for carrier-type reversal. The project was run between University of Southampton, University of Surrey and University of Cambridge. I led the design, fabrication and characterisation of devices from Southampton.  |

## ACADEMIC QUALIFICATIONS

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| **PhD in Optoelectronics/Nanotechnology with focus on light matter interaction, optoelectronic switching, reconfigurable metamaterials and plasma and thermal vapour deposition techniques** | Oct 2009 – July 2012 |
| * Optoelectronics Research Centre (ORC), University of Southampton
* Thesis: “Novel Chalcogenide Optoelectronics and Nanophotonic Information

 Storage and Processing Devices” – Supervisor: Prof Dan Hewak* EPSRC full scholarship and stipend.
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| **MSc Nanoelectronics (with Distinction)** |  Oct 2008 – Sep 2009 |
| * School of Electronics and Computer Sciences (ECS), University of Southampton
* Thesis: Selective Synthesis & enzymatic attachment of Carbon Nanotubes as Nano-Swimmers for directed drug delivery. – Supervisor: Dr Maurits de Planque
 |
| **BEng Electronics (Hons)** | Sep 2005 - Jul 2008 |
| * School of Electronics and Computer Sciences (ECS), University of Southampton
* Final Project: Feasibility Study & Prototyping Wireless Sensor Networks for the Purpose of Specific environmental sensing of variables inside continental oil pipelines. – Supervisor: Prof Bashir Al-Hashimi
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## OTHER ROLES

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| * **Journal Referee:** Advanced Materials, ACS Nano, Nature Communications, Nature: Scientific reports, Optical Materials Express, Journal of Applied Physics D: Applied Physics, Journal of Alloys and Compounds, Optics Express, IEEE Photonic Technology Letters, Applied Optics, Materials Research Express, Journal of Light wave Technologies amongst others.
* **Program Committee Member:** SPIE Optics and Photonics, Nanoscience and Engineering 2019
* **Editorial Board Member**: Institute of Physics (IOP) Journal of Optics.
* Member of IEEE, IOP, OSA.
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