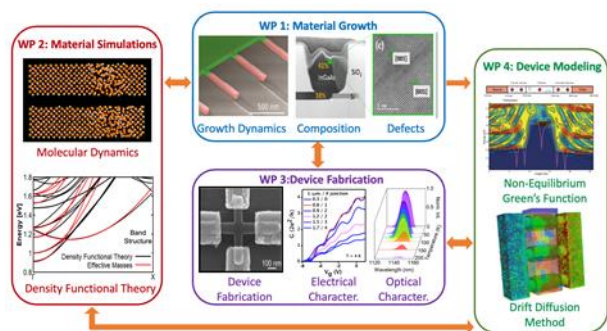


THREE COLLABORATIVE INDUSTRIAL PHD POSITIONS

[IBM Research Zurich](#) in Switzerland in collaboration with the [Device Modelling Group](#) at University of Glasgow (United Kingdom) and [Synopsys QuantumATK](#) in Copenhagen (Denmark) is seeking to appoint three Early Stage Researchers (ESR) in the framework of the Marie Skłodowska-Curie European Industrial Doctorate Network on '[Defect Simulations and Material Growth of III-V Nanostructures – European Industrial Doctorate](#)'.

Project overview: There is a great interest in integrating compound semiconductors either monolithically or heterogeneously on silicon to exploit their complementary properties, in particular the direct bandgap of III-Vs for opto-electronic devices densely integrated with CMOS. In this project we will address the challenges associated with the formation of defects and material growth in III-V semiconductors as well as their impact on device performance. As defects may be exploited in the development of novel devices, we more often wish to mitigate their deteriorating impact on electro-optic device performance, and therefore optimize the growth and the materials.



Candidates' Profile: Three candidates with a master's degree in physics, engineering or chemistry with knowledge of solid-state physics, materials science or electrical engineering and with an outstanding academic record. The candidates must be fluent in English, have good communication skills and be able to navigate in an international environment.

Individual projects:

ESR1 will mainly focus on aspects related to III-V materials epitaxial growth on silicon, TEM analysis and development of a machine learning algorithm for defect classification. He/She will develop a simulation framework to model the electronic and optical properties of individual defects.

Employment: IBM Research Zurich (22 Months) & University of Glasgow (14 Months).

ESR2 will explore the role of defects in the context of opto-electronic device performance. This will be done first via simulation where optimized designs will be developed, and later by fabricating those devices at IBM.

Employment: University of Glasgow (14 Months), IBM Research Zurich (22 Months)

ESR3 will develop theoretical models which will describe the complexity of the material growth process and defect formation in III-V materials. Those models will be implemented in state-of-the-art QuantumATK commercial simulation framework.

Employment: University of Glasgow (12 Months), Synopsys QuantumATK (24 Months)

Application:

Please send your application as a .pdf file, including the following documents:

-Curriculum Vitae, Official transcripts, 2 Reference letters

ESR1 & ESR2: Dr. Vihar Georgiev, Vihar.Georgiev@glasgow.ac.uk, Dr. Kirsten Moselund, kmo@zurich.ibm.com and Marilyne Sousa, sou@zurich.ibm.com

ESR3: Dr. Vihar Georgiev, Vihar.Georgiev@glasgow.ac.uk and Søren Smidstrup, Soren.Smidstrup@synopsys.com.