

EUROPEAN COMMISSION

HORIZON 2020 PROGRAMME

TOPIC ICT-37-2020

**Advancing photonics technologies and application driven photonics
components and the innovation ecosystem**

GA No. 101017194

**Advanced GeSi components for next-generation silicon photonics
applications**

SiPho-G

Advanced GeSi components for next-generation silicon photonics applications

Deliverable report

D1.1- First Project Activity Report

Disclaimer/ Acknowledgment



Copyright ©, all rights reserved. This document or any part thereof may not be made public or disclosed, copied or otherwise reproduced or used in any form or by any means, without prior permission in writing from the SIPHO-G Consortium. Neither the SIPHO-G Consortium nor any of its members, their officers, employees or agents shall be liable or responsible, in negligence or otherwise, for any loss, damage or expense whatever sustained by any person as a result of the use, in any manner or form, of any knowledge, information or data contained in this document, or due to any inaccuracy, omission or error therein contained.

All Intellectual Property Rights, know-how and information provided by and/or arising from this document, such as designs, documentation, as well as preparatory material in that regard, is and shall remain the exclusive property of the SIPHO-G Consortium and any of its members or its licensors. Nothing contained in this document shall give, or shall be construed as giving, any right, title, ownership, interest, license or any other right in or to any IP, know-how and information.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017194. The information and views set out in this publication does not necessarily reflect the official opinion of the European Commission. Neither the European Union institutions and bodies nor any person acting on their behalf, may be held responsible for the use which may be made of the information contained therein.

About SIPHO-G

By developing 100Gbaud Germanium-Silicon (GeSi) Quantum-Confined Stark-Effect (QCSE) modulators and highly sensitive 100Gbaud avalanche photodetectors (APD), SIPHO-G will bring breakthrough optical modulation and photodetection capability to the world of Silicon Photonics. The newly developed compact, waveguide-coupled modulator and detector building blocks will be monolithically integrated in a high-yield cutting-edge 300mm Silicon Photonics platform, propelling the bandwidth density, power efficiency, sensitivity and complexity of silicon photonic integrated circuits to the next level. Supported by an elaborate simulation and design enablement framework, SIPHO-G will demonstrate an extensive set of application-driven prototypes across the O-band and C-band.

By bringing together the entire Silicon Photonics value chain, SIPHO-G will accelerate the development of next-generation co-packaged optics, long-haul optical communications, as well as emerging PIC applications such as optical neuromorphic computing, with performance levels of 4x-20x beyond current state of the art.

SIPHO-G consortium members



Document information

Deliverable No.	D1.1
Related WP	WP1
Deliverable Title	First Project Activity Report
Deliverable Date	30-06-2022 (M18)
Deliverable Type	Report
Lead Author	Veroni Ballet (imec)
Co-Author(s)	First name Last Name (affiliation), First name Last Name (affiliation)

Document history

Date	Revision	Prepared by	Approved by	Description
Day/Month/Year	1	Task Leader	WP leader	First draft
Day/Month/Year	2	WP Leader	Coordinator	Final

Dissemination level

PU	Public	
CO	Confidential, only for members of the consortium (including the Commission Services)	X

Publishable summary

This deliverable describes the activities during the first 18 months of the SiPho-G project.