



Fibre Optic Nonlinear Technologies [FONTE] - A European Industrial Doctorate [GA766115]

Document Details

Title	Deliverable 6.3 Open-to-all Workshop 1 (OTAW I)
Deliverable number	D6.3
Deliverable Type	Report (public)
Deliverable title	Open-to-all Workshop 1 (OTAW I)
Work Package	WP6 –Recruitment, Management, Implementation
Description	Details on OTAW1 delivered by FONTE partner Nokia Bell Labs
Deliverable due date	31/05/2019
Actual date of submission	30/05/2019
Lead beneficiary	NBL
Version number	V1.0
Status	FINAL

Dissemination level

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

Project Details

Grant Agreement	766115
Project Acronym	FONTE
Project Title	Fibre Optic Nonlinear TEchnologies
Call Identifier	H2020-MSCA-ITN-2017
Project Website	fonte.astonphotonics.uk
Start of the Project	1 June 2018
Project Duration	48 months

Consortium



EC Funding



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 766115

Executive Summary

The **Open-To-All Workshop OTAW1** was organised and delivered by FONTE's industrial partner **Nokia Bell Labs** for a cohort of early career researchers in two linked H2020 **Innovative Training Networks: FONTE** (European Industrial Doctorate EID; GA 766115) and **COIN** (Innovative Training Network ITN; GA 676448). Further PhD students from outside the two networks joined the event either in person or virtually via Skype.

The two-day event took place on 18-19 Feb 2019 at Nokia Bell Labs in Stuttgart, Germany.

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LIST OF ACRONYMS

AiPT	Aston Institute Of Photonic Technologies
EC	European Commission
EID	European Industrial Doctorates
ESR	Early Stage Researcher
ITN	Innovative Training Network
FONTE	Fibre Optic Nonlinear Technologies
COIN	Coding for Optical communications In the Nonlinear regime

1. A UNIQUE OPPORTUNITY FOR JOINT TRAINING: FONTE AND COIN

This **Open-To-All Workshop (OTAW)** was organised by FONTE's industrial partner NOKIA Bell Labs (NBL), formerly Alcatel-Lucent, www.bell-labs.com at their premises in Stuttgart/Germany. NBL is a partner in - among others – the two Innovative Training Networks **FONTE** [GA766115] and **COIN** [GA 676448], both funded by the European Union's Horizon 2020 research and innovation programme under the Marie-Skłodowska-Curie Action:

- **FONTE - Fibre Optic nonlinear TEchnologies** <https://fonte.astonphotonics.uk/> is a European Industrial Doctorate (EID) network, training 4 Early Career Researchers (ESRs). Coordinated by Aston University (UK) with partners Delft University of Technology (Netherlands), Technical University of Denmark (Denmark), Telecom ParisTech (France) and industrial partner Nokia Bell Labs (Germany), FONTE focuses on the development of disruptive nonlinear techniques and approaches to fibre-optic communications.
- **COIN - Coding for Optical communications In the Nonlinear regime** <http://www.coinproject.eu/> is an Innovative Training Network (ITN), also training 4 ESRs. This project is coordinated by University College London (UK) with partners Chalmers University of Technology (Sweden), Nokia Bell Labs (Germany), and the University of Toronto (Canada). COIN's objective is the development of a new area of nonlinear communications including forward error correction, essential for reliable communication. Specifically, COIN's R&D goals focus on the development of new, native communication schemes and waveforms alongside with the development of coding schemes for these and existing non-linear Fourier transform based transceivers.

Taking advantage of the overlapping scope of both projects and the similar training needs of the ESRs within both networks presented a unique opportunity to organise a cross-project training event, allowing Early Career Researchers from both projects to interact, network and engage in an exchange of ideas over a 2-day long event. The workshop was attended by FONTE and Coin ESRs including some of their supervisors, students from Nokia's other academic partners as well as additional PhD students currently involved in research at NBL. Further PhD students joining via Skype for selected presentations.

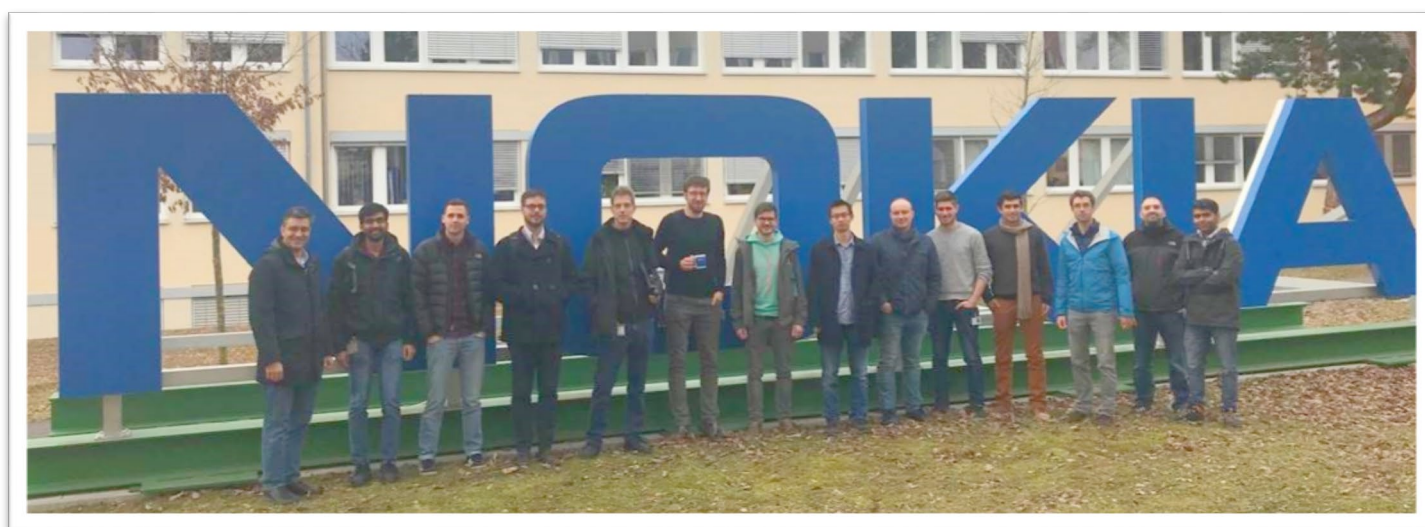


Figure 1: Some of the participants of OTAW1 at Nokia Bell Labs

2. CONTENT OF THE FIRST OPEN-TO-ALL WORKSHOP (OTAW1)

This first FONTE OTAW1 was a two day event, focussing on *information theory, short-reach optical communications, FEC, machine learning, 5G and optical signal processing* and was organized and delivered by Nokia Bell Labs (Stuttgart, Germany). The training workshop took place on 18-19 Feb 2019.

Monday 18 Feb 2019

- **Welcome**
presented by Dr Laurent Schmalen
Nokia Bell Labs; Department Head; High-speed Systems, Signals and Processing Group; IP and Optical Networks Program
- **Information Theory and Coding**
presented by Dr Vahid Aref
Nokia Bell Labs; IP and Optical Networks Program
- **Short Reach Optical Communications - A Tutorial**
presented by Dr Mathieu Chagnon
Nokia Bell Labs
- **Advanced Forward Error Correction for Optical Communications**
presented by Dr Laurent Schmalen
Nokia Bell Labs; Department Head; High-speed Systems, Signals and Processing Group; IP and Optical Networks Program

Tuesday 19 Feb 2019

- **Deep Learning for Communications**
presented by Dr Jakob Hoydis
Nokia Bell Labs
- **5G - An End-to-end Vision**
presented by Dr Markus Gruber
Nokia Bell Labs; Department Head
- **Basics of Optical Signal Processing and Laser Modulation**
presented by Dr Henning Bülow
Nokia Bell Labs; Optical Networks Department

The *confidential* and commercially sensitive training material including all presentations given at the event, are available to FONTE consortium members only via the members-only area of the project website.

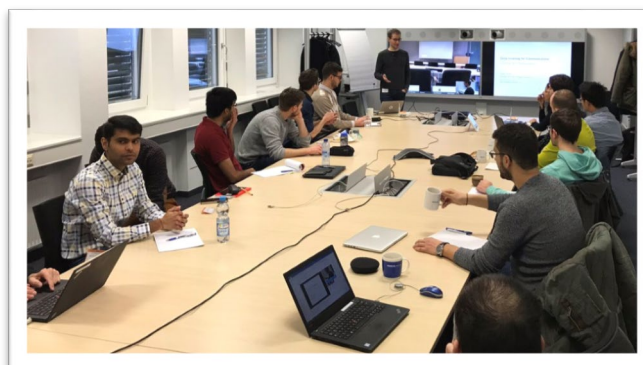


Figure 2: During the OTAW1 training event