



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

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PU	Public	X
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Project Details

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Consortium



EC Funding



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Executive Summary

The **3rd year FONTE Workshop and Annual Meeting (Full Network Meeting)** was held on 25 Sept and 16 Nov 2020. Due to the **COVID-19** pandemic, the event was virtual and online only. In FONTE, Annual Workshop and Network Meetings are the prime opportunity for ESRs to update the consortium on progress in their PhD research topic and conduct in-depth scientific discussions with FONTE members including fellow PhD students.

During this year's 3rd Annual Meeting technical presentations were given by all four FONTE ESRs, providing them with an opportunity to demonstrate their scientific progress to the FONTE consortium, answering questions and discussing specificities in detail with the Consortium's scientists, Work Package leaders and fellow ESRs. In addition to the technical progress, all ESRs presented summaries of their continuing professional development, publications, outreach and science communication, as well as plans for the next 6-8 months.

Although the COVID-19 pandemic is raging across Europe, leading to the cancellation of all in-person conferences and workshops for the time being, it is especially pleasing to see that FONTE ESRs are taking full advantage of the myriad of webinars, courses, lectures, free online conferences and training events now available online due to the pandemic, being time-efficient alternatives with smaller CO₂ footprint and reduced expenditure. FONTE itself organised several scientific symposia and meetings in this way recently.

The 3rd year FONTE Workshop also included a management session with the entire FONTE Consortium. Its focus was a review of the current progress of the action, forward planning of the next 6-12 months and a decision-taking forum. The meeting concluded with a Supervisory Board meeting.

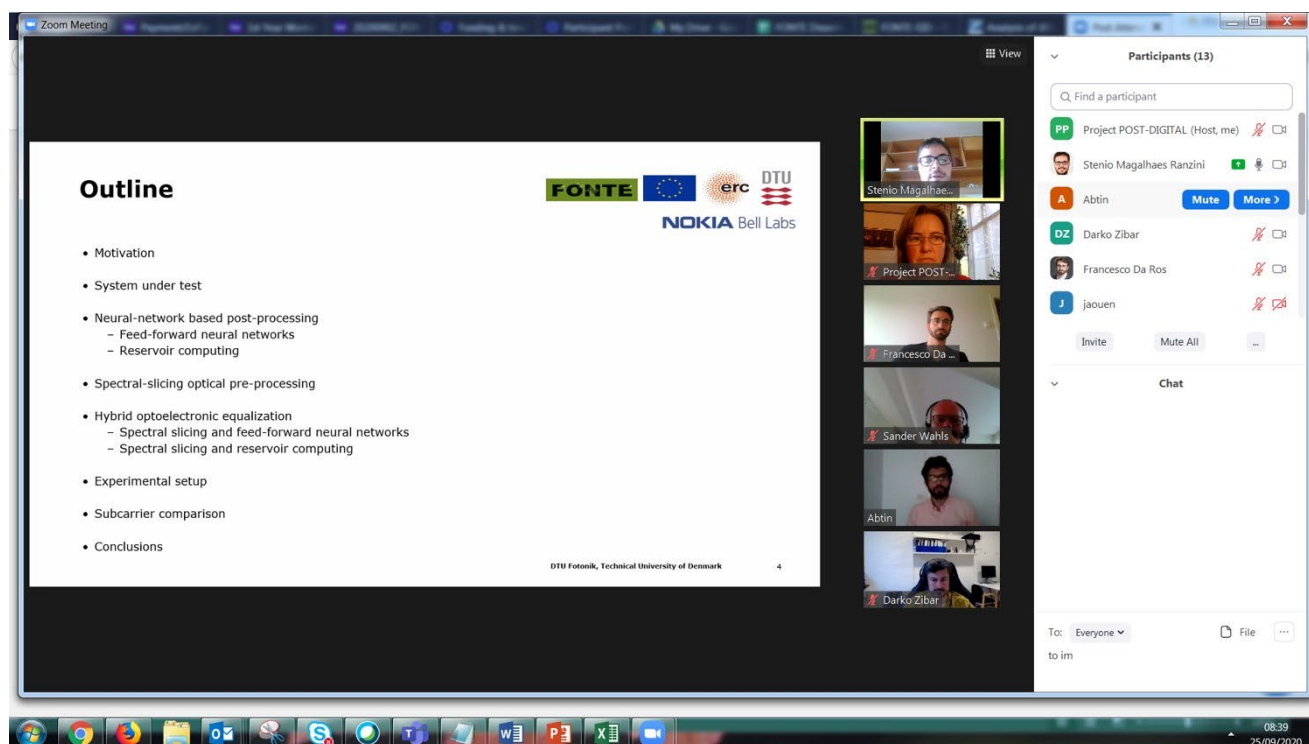


Figure 1: The FONTE Consortium during the online 3rd year FONTE workshop (25 Sept 2020)

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LIST OF ACRONYMS

AiPT	Aston Institute of Photonic Technologies
AST	Aston University
DTU	Technical University of Denmark
EC	European Commission
EID	European Industrial Doctorates
ESR	Early Stage Researcher
FONTE	Fibre Optic Nonlinear Technologies
NBL	Nokia Bell Labs
TU Delft	Delft University of Technology
TPT	Télécom Paris/ Télécom ParisTech

1 THIRD YEAR FONTE WORKSHOP - AGENDA

3rd Year Workshop & Management Meeting

Agenda

FONTE full Network/Management meeting, including 3rd Annual Workshop
 Friday 25 Sept; 9:30-13:00 Brussels Time - online due to COVID
 Participation link: <https://zoom.us/j/93584593534?pwd=aGVJbm5JaUtZbGlCYmRqQ0t2OWo2Zz09>

9:30 – 9:40	Welcome (SKT)
9:40 – 11:20	Student presentation (each including 5 min for discussion) Please refer to my instructions send 10/8/20 and reminder 7/9/20 ¹ - and below <ul style="list-style-type: none"> • Stenio M. Ranzini: 30 min • Vinod Bajaj: 30 min • Vladislav Neskorniuk: 30 min • Abtin Shahkarami : 30 min (POSTPONED to 19 Nov 2021)
11:20 – 12:40	Management Review: Looking back/ looking forward (CDS; entire consortium) <ul style="list-style-type: none"> • Project Periodic Report – update • Financial update (Prefinance; Interim payment; distributed to partners) • WP progress: Status deliverables and milestones; outstanding and upcoming • Impact measure: publications • Training – completed, upcoming, outstanding; TSW3 and OTAW • Outreach activities • Industrial secondments/'short visits' • IPR – review • PO's input from MTC: more science on website/newsletters/social media • COVID-19 contingency review • Any other business • Next Management meeting
12:40– 13:00	Formal Meeting of the Supervisory Board – confidential; No ESRs present
13:00-13:30	Individual Supervisory Panels of ESRs – confidential per ESR; as requested
13:30	FINISH of FONTE Mgt Meeting

¹ ESRs, please include in your presentation:

- Scientific progress
- Summary of all publications (including submitted)
- Other, less formal dissemination activities, seminars given/ events attended
- Training attended (also outside FONTE and online)
- Outreach activities completed and planned. Please put some thought into outreach activities that do not necessitate face-to-face meetings

Figure 2: Agenda of 3rd Annual Meeting

All ESRs and supervisors/ WP leaders attended the event with the exception of Dr Henning Buelow (NBL), who retired on 31 Aug 2020.

2 TECHNICAL PRESENTATIONS BY FONTE ESRs

2.1 ESR1 VLADISLAV NESKORNIUK (ASTON UNIVERSITY), CURRENTLY SECONDED TO NOKIA BELL LABS, STUTTGART

Vladislav, Neskorniuk's technical progress presentation covered confidential material recently submitted for publication and thus covered by confidentiality issues. Therefore, the technical details cannot be included in this public report and have been redacted in the talk excerpt below.

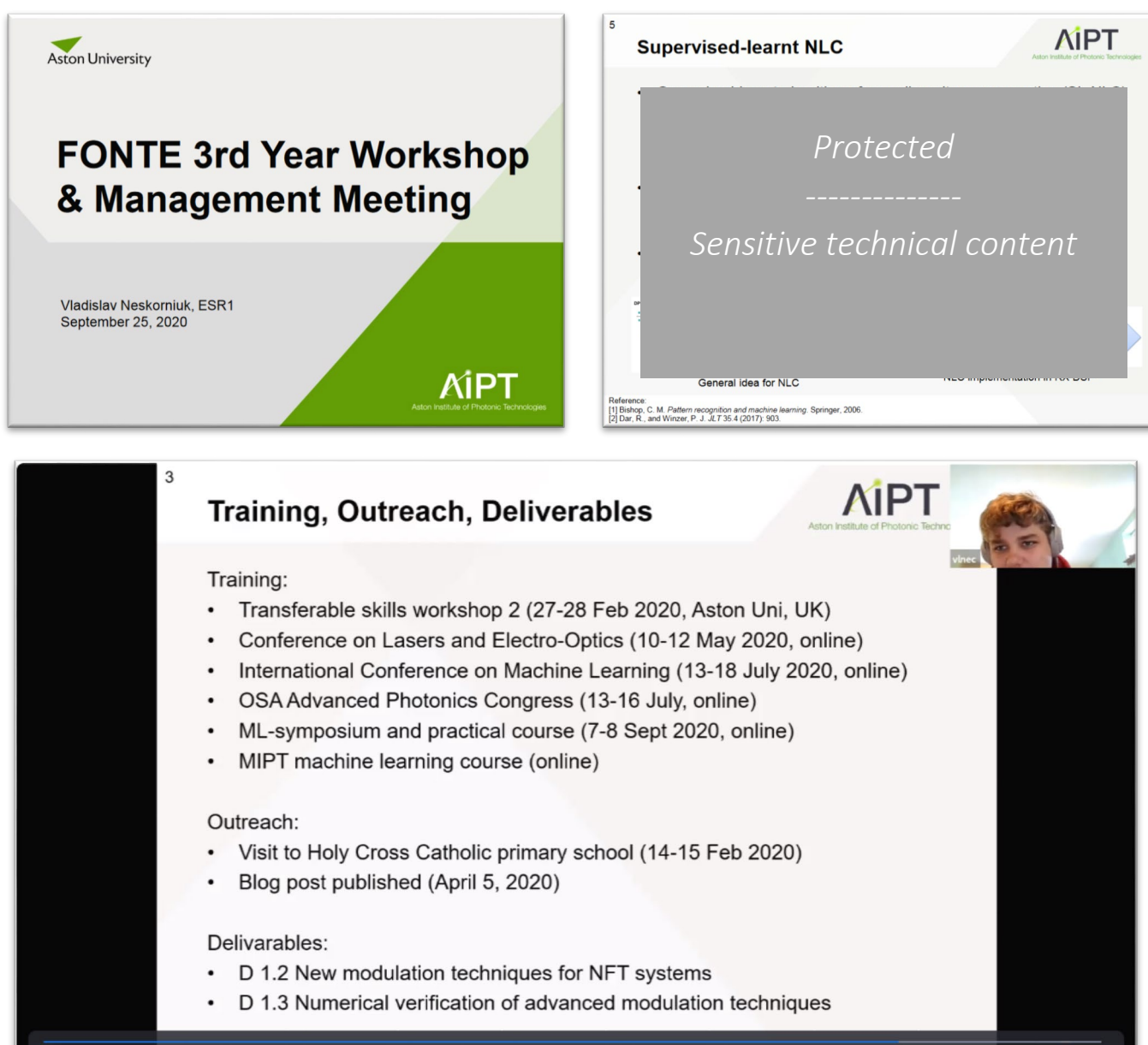
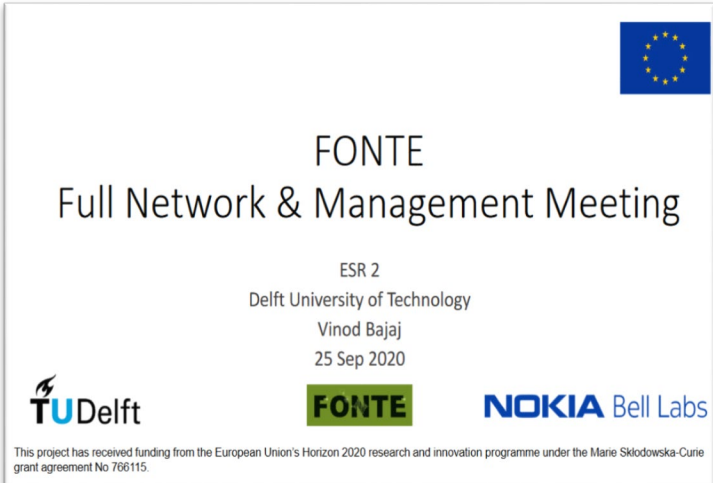





Figure 3: Confidential technical presentation by ESR1 (Vladislav Neskorniuk)

2.2 ESR2 VINOD BAJAJ (TU DELFT), CURRENTLY SECONDED TO NOKIA BELL LABS, STUTTGART

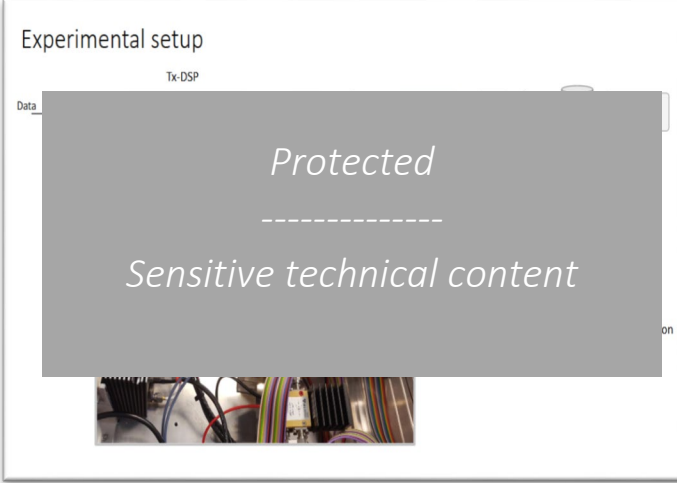
Vinod Bajaj's technical progress presentation covered confidential material recently submitted for publication and thus covered by confidentiality issues. Therefore, the technical details cannot be included in this public report and have been redacted in the talk excerpt below.



FONTE
 Full Network & Management Meeting
 ESR 2
 Delft University of Technology
 Vinod Bajaj
 25 Sep 2020

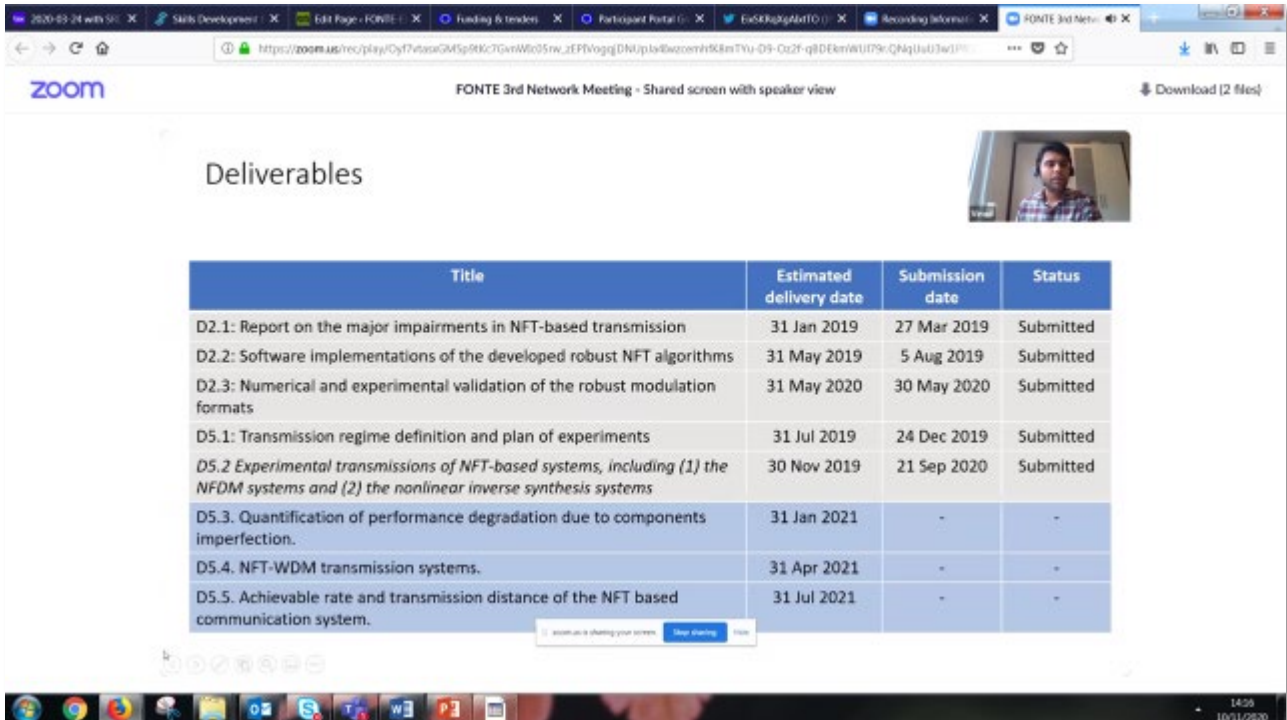




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Experimental setup
 Tx-DSP
 Data
Protected

Sensitive technical content







Title	Estimated delivery date	Submission date	Status
D2.1: Report on the major impairments in NFT-based transmission	31 Jan 2019	27 Mar 2019	Submitted
D2.2: Software implementations of the developed robust NFT algorithms	31 May 2019	5 Aug 2019	Submitted
D2.3: Numerical and experimental validation of the robust modulation formats	31 May 2020	30 May 2020	Submitted
D5.1: Transmission regime definition and plan of experiments	31 Jul 2019	24 Dec 2019	Submitted
D5.2 Experimental transmissions of NFT-based systems, including (1) the NFDM systems and (2) the nonlinear inverse synthesis systems	30 Nov 2019	21 Sep 2020	Submitted
D5.3. Quantification of performance degradation due to components imperfection.	31 Jan 2021	-	-
D5.4. NFT-WDM transmission systems.	31 Apr 2021	-	-
D5.5. Achievable rate and transmission distance of the NFT based communication system.	31 Jul 2021	-	-


Figure 4: Confidential technical presentation by ESR2 (Vinod Bajaj)

2.3 ESR3 STENIO M. RANZINI (DTU), CURRENTLY SECONDED TO NOKIA BELL LABS, STUTTGART

Stenio Ranzini's technical progress presentation covered confidential material recently submitted for publication and thus covered by confidentiality issues. Therefore, the technical details cannot be included in this public report and have been redacted in the talk excerpt below.





Summary of all accepted publications









#	Type	Title	Name	When
1	Conference (Training - Talk)	Joint low-complexity opto-electronic chromatic dispersion compensation for short-reach transmission (Zenode)	2019 IEEE Photonics Conference (IPC)	29 Sept.-3 Oct. 2019
2	Journal	Tunable Optoelectronic Chromatic Dispersion Compensation Based on Machine Learning for Short-Reach Transmission (Zenode)	Applied Sciences	Sept. 2019
3	Journal	Reservoir-computing based equalization with optical pre-processing for short-reach optical transmission (Zenode)	IEEE Journal of Selected Topics in Quantum Electronics	Feb. 2020
4	Conference (Training - Talk)	Optoelectronic signal processing for chromatic dispersion mitigation in direct detection systems (Zenode)	International Conference on Transparent Optical Networks ICTON 2020	July 2020

Results (2)







10⁰ DSP-RC


Protected

Sensitive technical content

DTU Fotonic, Technical University of Denmark 20

Outreach



#	Where	Title	Name	When
1	Copenhagen	Participation in Copenhagen Culture Night (Kulturatten) - Link	FONTE Webinar	11 Oct. 2019
2	DTU	Open house DTU event: Annually attracting thousands of young people	Information day	20 Feb. 2020
3	Blog	Link	-	-
4	Twitter	Link	-	-
5	Youtube	Maybe (talking to Francesco)	-	-

DTU Fotonic, Technical University of Denmark 33

Figure 5 Confidential technical presentation by ESR3 (Stenio M. Ranzini)

2.4 ESR4 ABTIN SHAHKARAMI (TÉLÉCOMPARIS TECH/TÉLÉCOM PARIS)

Abtin Shahkarami's, technical progress presentation covered confidential material recently submitted for publication and thus covered by confidentiality issues. Therefore, the technical details cannot be included in this public report and have been redacted in the talk excerpt below.

Outreach activities

Title	Approx. Date	Type of outreach
FONTE Persian Bulletin	Oct. 2020	Bulletin
Establishing the personal website (Abtin.fr) for publishing my outreaches articles	Apr. 2020	Blog
Writing the article: « Comment l'intelligence artificielle fera un monde meilleur? »	Mar. 2020	Article
Starting twitter activities	Feb. 2020	Social Media
Introducing FONTE project and its objectives in NIPS2019, Vancouver, CA	Dec 2019	Presentation
Mini-conference on the application of deep learning in optical fiber communications at Telecom Paris	Nov. 2019	Conference

Figure 6: Confidential technical presentation by ESR4 (Abtin Shahkarami)