



D5.4 | Dissemination Activities

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Abstract

This is a draft report of the dissemination activities by the 30th month of the project.



1. Introduction

According to European Commission guidelines¹, the H2020 principles direct participants to take part in both dissemination and exploitation activities. In SUPERTED D4.4 Dissemination and exploitation plan, the dissemination activities are defined as follows:

- Dissemination is **about results only**, it transfers knowledge “to the ones that can best make use of it” and “maximizes the impact of research, enabling the value of results to be potentially wider than the original focus”. Some examples are peer-reviewed publications, presentations on scientific conferences and social events.

Each of the project partners are responsible for implementing the dissemination activities on their own areas of expertise. Since the dissemination and exploitation plan (DEP, D4.4) is dynamic and reviewed periodically, this draft report will discuss the current state of the dissemination activities and suggests actionable steps for advancing the dissemination activities during the rest of the project.



2. Dissemination activities

2.1 Press releases on high impact factor articles

Based on the D4.4 DEP, more than 30 research papers have been expected to emerge as a result of the project. This landmark has been reached during summer 2020 which means the publication activities have exceeded expectation by the half point of the project. Currently, there are nearly 50 peer-reviewed articles that acknowledge the project listed on the SUPERTED website (<https://superted-project.eu/publications>). In addition, publishing in high-impact (>7) journals is encouraged. Accompanying high-impact publications with a press release for international media and the AlphaGalileo service is an important goal for reaching the general public.

Overall, there have been 9 publications in high-impact journals (IF>7). Six of those publications have one or more press releases linked to them. The press releases have been published on the institution websites of the project members and listed on the SUPERTED website <https://superted-project.eu/news>.

Table 1: Press releases on publications with high impact factor.

Publication	Press release
" <i>Gate-controlled suspended titanium nanobridge supercurrent transistor</i> " M. Rocci, G. De Simoni, C. Puglia, D. Degli Esposti, E. Strambini, V. Zannier, L. Sorba, and F. Giazotto, ACS Nano, 14, 10, 12621–12628, 2020, DOI: https://doi.org/10.1021/acsnano.0c05355 (arXiv publication)	http://web.nano.cnr.it/sqel/2020/09/16/gate-controlled-suspended-titanium-nanobridge-supercurrent-transistor-published-on-acsnano/
" <i>A Josephson phase battery</i> " E. Strambini, A. Iorio, O. Durante, R. Citro, C. Sanz-Fernández, C. Guarcello, I. V. Tokatly, A. Braggio, M. Rocci, N. Ligato, V. Zannier, L. Sorba, F. S. Bergeret and F. Giazotto, Nat. Nanotechnol. 15, 656–660, 2020, DOI: https://doi.org/10.1038/s41565-020-0712-7 (arXiv publication)	http://web.nano.cnr.it/sqel/2020/06/17/a-josephson-phase-battery-has-been-published-on-nature-nanotechnology/ https://cfm.ehu.es/cfm_news/a-phase-battery-for-quantum-technologies/ http://web.nano.cnr.it/sqel/2020/07/25/press-review-of-a-josephson-phase-battery/
" <i>Nonlinear thermoelectricity with electron-hole symmetric systems</i> " G. Marchegiani, A. Braggio, and F. Giazotto Phys. Rev. Lett. 124, 106801, 2020, DOI: https://doi.org/10.1103/PhysRevLett.124.106801	http://web.nano.cnr.it/sqel/2020/03/26/nonlinear-thermoelectricity-with-electron-hole-symmetric-systems-published-on-physical-review-letters/



(arXiv publication)	
" Thermal, electric and spin transport in superconductor/ferromagnetic-insulator structures ", T. T. Heikkilä, M. Silaev, P. Virtanen, S. F. Bergeret, <i>Progress in Surface Science</i> , 94 (3), 100540, 2019 , DOI: doi.org/10.1016/j.progsurf.2019.100540 (arXiv publication)	https://www.jyu.fi/science/en/nanoscience-center/research/research-highlights/research-highlights-of-year-2019
" Field-Effect Controllable Metallic Josephson Interferometer " F. Paolucci, F. Vischi, G. De Simoni, C. Guarcello, P. Salinas, and F. Giazotto, <i>Nano Letters</i> , 19, 6263–6269, 2019 , DOI: doi.org/10.1021/acs.nanolett.9b02369 (arXiv publication)	http://web.nano.cnr.it/sqel/2019/09/17/field-effect-controllable-metallic-josephson-interferometer-published-on-nano-letters/
" Josephson Field-Effect Transistors Based on All-Metallic Al/Cu/Al Proximity Nanojunctions " G. De Simoni, F. Paolucci, C. Puglia, and F. Giazotto, <i>ACS Nano</i> , 13 (7), 7871–7876, 2019 , DOI: doi.org/10.1021/acsnano.9b02209 (arXiv publication)	http://web.nano.cnr.it/sqel/2019/06/21/josephson-field-effect-transistors-based-on-all-metallic-al-cu-al-proximity-nanojunctions/

2.2 Talks

2.2.1 Conferences

The project results are presented as oral presentation, posters, etc. at major international meetings and conferences. Scientific meetings are useful forums for communicating the project results and sharing ideas with the SUPERTED target audience. Unfortunately, the opportunities to participate in face-to-face discussions at scientific meetings has been limited since the outbreak of COVID-19.

M. Carrega, S. Guiducci, A. Iorio, L. Bours, E. Strambini, G. Biasiol, M. Rocci, V. Zannier, L. Sorba, F. Beltram, S. Roddaro, F. Giazotto, and S. Heun, "Investigation of InAs-based devices for topological applications," Proc. SPIE 11090, Spintronics XII, 110903Z (16 September 2019); <https://doi.org/10.1117/12.2527754>

During Nanowire Week held in Pisa from 23rd to 27th of September 2019, Elia Strambini gave a talk titled "*Magnetically-driven anomalous phase shift in InAs nanowire Josephson Junctions*". <http://web.nano.cnr.it/sqel/2019/09/28/sqel-at-the-nanowire-week-2019/>



2.2.2 Outreach activities

The public lectures by the consortium researchers have taken place in events such as Researchers' Night, International day of the women and girls in science, the annual Jyväskylä summer school, etc. The events are mainly organized by partner institutes. Significant part of the public lectures or outreach activities have been cancelled or organized in alternative format after March 2020 due to COVID-19. For example, the annual Jyväskylä summer school did not take place in 2020 and it was postponed to 2021.

2.3 Lab tours

At the start of the project, several lab tours were expected to take place based on previous activities. At the JYU Nanoscience Center (NSC), the SUPERTED researchers are involved in guided tours and numerous visitors (school children, collaborators, public, etc.) visit the center yearly. Correspondingly, CFM carries out a program of visits for high school students, approximately every two weeks during the academic year. In addition to visits to the facilities, CFM and DIPC offers students the opportunity to directly interact with PhD students, post-doc researchers, professors, and other scientific staff. In year 2018, around 500 students visited CFM.

These visits and lab tours were carried out normally until March 2020. After the COVID-19 pandemic outbreak, the visits and lab tours came to an abrupt halt. At the time of the reporting, the COVID-19 pandemic is still in full force and the visits and lab tours have not been reinstalled. Only occasional, individual visits have taken place since March 2020.

2.4 Other activities

Other dissemination activities include institute reports, press releases related to the project in general, the project webpage and social media.

Institute reports

- [Newsletter of NSC in 2018](#)
- [Annual report of the Department of Physics at JYU in 2018](#)
- [Activity report of the CFM in 2018](#)

Press releases

- "*The American Physical Society recognized Ilari Maasilta's merits as a Referee*", JYU, 3/2020
- Doctoral dissertation: "*31.2.2020 M.Sc. Faluke Aikebaier (Faculty of Mathematics and Science, Physics)*", JYU, 1/2020
- "[*Non-adiabatic dynamics of strongly driven diffusive Josephson junctions*](#)", JYU, 12/2019
- Nadia Ligato awarded at "*RAITH Micrograph Award 2019*", CNR, 11/2019



- *"Researchers developing an ultrasensitive radiation detector meet in Jyväskylä"*, JYU, 9/2018
- *"European Project SUPERTED"*, BIHUR, 8/2018
- *"La Comisión Europea, dentro de su programa FET Open (Future Emerging Technologies), ha concedido tres millones de euros a Superted"*, CFM, 5/2018
- *"European funding for developing a new type of radiation detector"*, JYU, 4/2018

YouTube videos

- Tero Heikkilä explains the SUPERTED project and its goal to realize the world's first superconducting thermoelectric detector of light
<https://www.youtube.com/watch?v=svdSj0pqe0c&feature=youtu.be>.
- Ilari Maasilta, Zhuoran Geng and Ari Helenius focus on the practical aspects of the project
<https://www.youtube.com/watch?v=ccM3VekmLMw>.

Twitter

- SUPERTED project uses Twitter to tweet relevant information. So far, there has been 33 tweets and retweets on the SUPERTED-project account.
<https://twitter.com/SupertedP>



3. Conclusions

The publication activities of the project have already exceeded expectations. Nearly 50 articles have been published with an affiliation to the project. Nine of the publications have been published in high impact journals and they have been linked to 6 press releases. One of the publications has also gained attention on multiple media outlets (Table 1).

Talks and lab tours as well as other outreach activities have been significantly affected by the COVID-19 pandemic. As a result, events have been cancelled or they have been organized using a format that limits the overall reach. At the 30th month of the project, it is still impossible to predict how the COVID-19 pandemic is going to go forward. Currently, despite of the vaccination efforts finally advancing, it is highly possible that the situation related to public events and traveling is not going to normalize during 2021. Thus, SUPERTED project considers alternative options to maximize the impact of research. Instead of the traveling that was originally planned, attention should be shifted towards more active online presence. There is a short film planned for the end of the project but to further support the originally planned efforts, holding online seminars and improving social media presence can be very beneficial options.



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