



Dear Readers,

The last year, we all suffer from the global pandemic as well as the national restrictions and lockdowns we had to face. The SPINTECH project was not spared by the COVID-19 pandemic but during this period the partners implemented several mitigation measures to ensure the achievement of all the SPINTECH objectives and activities.

In this newsletter, we will present you all the activities performed by the partners and their participation to events and you will be surprised to see how active they have been despite the COVID-19 pandemic.

Coordinator:



Partners:



Stockholm
University



- 🔗 SPINTECH at the “EU vs. Virus” Hackathon and Matchathon.
- 🔗 SPINTECH representatives awarded.
- 🔗 Seminar at IEN D. GHITU.
- 🔗 The 2nd SPINTECH Summer School in Twente.
- 🔗 Organisation of the Advisory Board meeting in Chisinau.
- 🔗 The 12th International Conference on Intrinsic Josephson Effect and Horizons of Superconducting Spintronics.
- 🔗 Cooperation with the Twinning project ELICSIR.

In addition, we have been in close contact with the European Commission this last to extend the project duration by 6 months. In the pandemic context, we wanted to guarantee the full completion of our project activities and especially the Staff exchanges between the coordinator IEN and its twinning partners the University of Twente and Stockholm University.

Keep up to date with the latest project news, visit our [SPINTECH website](http://www.h2020-spintech.eu).

SPINTECH Team





SPINTECH at the "EU vs. Virus" Hackathon and Matchathon

IEEN members represented the SPINTECH project by participating in the European Commission's Hackathon + Matchathon + EIC COVID Platform initiative ([#EUvsVirus](https://www.euvsvirus.org)) in April 2020, to create solutions to combat COVID-19. As a "SPINTECH-Mask" team, the members of the project team (Anatolie Sidorenko, Evgheni Antropov, Tatiana Gutul, Tatiana Mironic) presented their

elaboration of a technological process of preparation of active nanoparticles (colloidal solution) of Ag, Fe and SiO₂ and introduced them in usual textile masks, which gives long-term protection for medical personnel.

This event created new contacts with two groups of mutual interest: Florian from Romania who developed an efficient machine for mask production; and Nevena from Bulgaria, a manager of a big factory producing textile masks. Both expressed interest in collaborating with IEEN to produce active masks. Their technology was very well-received and during 3 days of intensive mutual work, it was presented along with 2140 projects, dealing with various solutions against COVID-19.



SPINTECH representatives awarded

On the 7th of May 2020, Prof. Anatolie Sidorenko, Director of D.GHITU Institute at IEEN and SPINTECH Coordinator, received a "Diploma of Appreciation" by the Minister of Education, Culture and Research of the Moldova Republic, Prof. Igor Șaro.

The SPINTECH team attended the EUROINVENT 2020 conference held in Iasi (Romania) on the 21-23 of May 2020 where they presented their latest research work and were awarded with two Gold medal and one Silver Medal for their great scientific results.





Seminar at IEN D. GHITU

In the COVID-19 context, the SPINTECH teams had to be innovative on how to raise the awareness of Moldovan researchers on topics relevant to advanced vacuum technologies development for fabrication of layered nanostructures for spintronics, and the elaboration & testing of a superconducting spin-valve for switching and memory elements. Consequently, on the 22nd of May 2020, Prof. Anatolie Sidorenko invited representatives from three laboratories at the Institute of Electronic Engineering and Nanotechnologies "D: GHITU" to present the latest outcomes of the SPINTECH project.

The seminar aimed at presenting the project objectives and activities as well as the main achievements of the Institute and twinning partners in the field of superconducting spintronics. In addition of awareness raising on this scientific domain and the benefits for Moldova and the world, the coordinator invited the participants to join the SPINTECH activities. The attendance to the event was particularly good despite the current pandemic and a total of 32 participants attended the event. Amongst them, 23 new staff members joined the seminar and expressed their interest for SPINTECH activities including the Staff Exchange with the twinning partners.



The second SPINTECH Summer School in Twente

The second SPINTECH Summer School was organised in collaboration with by the partner UTWENTE on their university campus, the 2-3 October 2020. Due to the current Covid situation, the event was extended to online participants including the international speakers in order to ensure a good quality of presentations despite the travel restrictions. In total, the event attracted a total of 32 participants. The program of the 2nd SPINTECH Summer School is presented below:

2nd of October 2020

- Anatolie Sidorenko (IEN): Functional nanostructures for superconducting spintronics: smart technological approach.
- Hans Hilgenkamp (UTwente): Information processing using fractional flux quanta.
- Alexander Brinkman (UTwente): Bi based topological materials for spintronics and topological Josephson junctions.
- Chuan Li (Twente): Quantum devices towards 1D topological superconductivity.
- Igor Lukyanchuk (France): Fundamental topology of ferroelectrics.
- Valerii Vinokur (USA): The nature of high temperature superconductivity.

3rd of October 2020

- Yukio Tanaka (Japan): The physics of Andreev bound states in superconductor junctions - Part I
- Yukio Tanaka: The physics of Andreev bound states in superconductor junctions - Part II
- Shu Suzuki (Japan): Magnetic property of odd-frequency Cooper pairs
- Vladimir Krasnov (SU): Superconducting supercomputer: challenges and solutions

YouTube





Organisation of the Advisory Board meeting in Chisinau

On the 20th of November 2020, the SPINTECH coordinator organised an Advisory Board meeting in Chisinau (Moldova). The Organizing committee consisted in the consortium partners: Prof. Anatolie Sidorenko (IEEN), Prof. Alexander Golubov (Uni-TWENTE) and Prof. Vladimir Krasnov (SU), as well as representatives of the Advisory Board, namely:

- 🔗 Dr. Peter Bogatenkov (Company RENAM, Moldova)
- 🔗 Dr. Elena Achimova (Institute of Applied Physics, Moldova)
- 🔗 Mihai Rotaru (Enterprize "TOPAZ", Moldova)
- 🔗 Prof. Horst Hahn (Karlsruhe Institute of Technology, Germany) – via Skype.

The partners presented the latest project's activities and results. The members of the Advisory Board proposed to start the implementation of the new knowledge and results in the field of spintronics. They also offer their assistance in the process of developing these innovative technologies and methods, here in Moldova.



12th International Conference on Intrinsic Josephson. Effect and Horizons of Superconducting Spintronics.

The conference will take place in Chisinau (Moldova) on the 22-25 September 2021 but participants will have the chance to attend the conference remotely using a visioconferencing system.. The aim of the event is to strengthen regional and interdisciplinary links between the scientists and scholars, while supporting the development of international contacts and introducing young researchers to professional and fruitful scientific work practices. The main goal of the Conference is to bring together leading experts to share their expertise and experience in developing of new ideas and principles, novel technologies and their implementations on frontiers of high-frequency superconducting electronics and spintronics. The main topics of the conference are the following:

- 🔗 Physics and applications of the intrinsic Josephson effect.
- 🔗 S/F hybrid structures and horizons of superconducting spintronics.
- 🔗 High-frequency Josephson devices
- 🔗 Unconventional and topological superconductivity



Register on the conference webpage: <http://nanotech.md/SPINTECH-2021>



Organisation of the Advisory Board meeting in Chisinau

On Monday the 22nd of March 2021, the SPINTECH project organised a training workshop on the "Modeling of Functional Nanostructures, their fabrication and investigation of the structure and morphology" at D.GHITU Institute in Moldova. The training was organized in a mixed form: the four (4) lecturers presented from the Institute while the 21 participants attended the lectures via Zoom conference mode to ensure safety in the COVID-19 era. The Training workshop consisted in the following lectures:

- "Modeling of the layered functional nanostructures superconductor/ferromagnet"; Prof. A.Golubov (UTWENTE).
- "Vacuum deposition of layered nanostructures"; Prof. Anatolie Sidorenko (EIIN).
- "Focused Ion Beam as a precise instrument for nanostructures fabrication"; Prof. V. Krasnov (SU).
- "Effective management of the European project in case of COVID-19 pandemic restrictions"; Dr. O. Bujor (EIIN).



Cooperation with the Twinning project ELICSIR

The SPINTECH coordinator has been approached by Prof. Dr. Goran S. Ristic from the University of Nis (Serbia) who coordinates the Twinning project [ELICSIR](#). Prof. Ristic is the Head of the Applied Physics Laboratory and his ELICSIR project focuses on the enhancement of the scientific excellence and innovation potential in electronic instrumentation for ionizing radiation environments.

Prof. Ristic organised an online event called "Twinning Projects: Experiences and Obstacles" on the 24-25 March 2021 and invited Twinning coordinators and actors to share their experience and best practices. Our project coordinator, Prof. Anatoli Sidorenko, participated in this event and made a presentation of the SPINTECH project as well as his personal experience with the programme.



Contact

Prof. Anatolie Sidorenko (Project Coordinator)

D. Ghițu Institute of Electronic Engineering and Nanotechnologies (IEEN)
Academiei str., 3/3, MD-2028, Chișinău, Republica Moldova



<https://www.researchgate.net/project/SPINTECH-superconducting-spintronics>



https://twitter.com/H2020_SPINTECH

