

Newsletter No. 4: Sept 2022 - March 2023

MaNaCa in a nutshell

The MaNaCa project finished at the end of March 2023. It aimed to develop the scientific and technological capacity as well as raise the research profile of the Institute for Physical Research of the National Academy of Sciences (IPR-NAS) in Armenia. From a scientific standpoint, MaNaCa was focused on the structural and magnetic characterization of magnetic nanohybrids and their application for cancer therapy. The project's aim was accomplished by networking IPR-NAS with two internationally-leading research organisations: the Aristotle University of Thessaloniki (AUTH) in Greece and the University of Duisburg – Essen (UDE) in Germany. Throughout the project, the research partners were supported with the management and dissemination activities by Intelligentsia Consultants Sàrl (INT), a consultancy company based in Luxembourg, which had already collaborated on several occasions with IPR-NAS during the FP7 and H2020 programmes.

From 2019-2023, the partners carried out a research and innovation strategy with the following objectives:

1. Stimulate scientific excellence and innovation capacity of IPR-NAS with regard to magnetic nanohybrids for cancer therapy.
2. Improve the career prospects of early stage researchers of IPR-NAS and the Twinning partners
3. Raise the research profile of IPR-NAS and the Twinning Partners

These objectives were centred around a research and innovation strategy focused on two sub-topics:

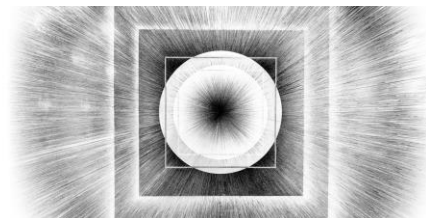
- A. Structural and magnetic characterization of nanohybrids
- B. Magnetic particle hyperthermia

In order to accomplish this, the consortium partners implemented a comprehensive set of actions:

- Exchange of senior researchers;
- Exchange of early stage researchers; and
- Dissemination and outreach.

In addition to staff exchanges, the project activities also included technical training, joint publications, joint participation to conferences, organization of summer schools, workshops and an international conference.

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News

September 2022, Horizon Europe proposal writing training workshops in Armenia

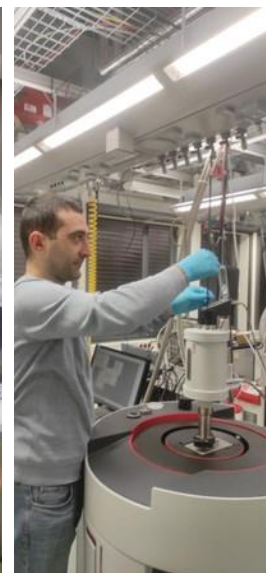
Intelligentsia Consultants' Giles Brandon gave two Horizon Europe proposal writing training workshops in Yerevan, Armenia. Held during 20-21 September, the training workshops gathered participants from the Institute for Physical Research, Institute of Chemical Physics, Russian-Armenian University, Yerevan State University and the Scientific and Innovation Partnership Center.

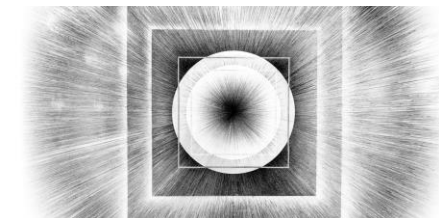
The first training workshop was focused on several coordination and support actions (CSA) funded under the Horizon Europe Widening programme (Twinning, ERA-Chair and Hop-On Facility) while the second training workshop was focused on research and innovation actions (RIA) and innovation actions (IA) funded under Horizon Europe Pillar 2 (Clusters 4 and 5). During the practical trainings, Mr Brandon drew upon his many years of experience of successful proposal writing to provide examples of proposal structure, text and figures to support researchers with their proposal writing.



December 2022, IPR-NAS Early-Stage Researchers visit UDE

IPR-NAS early-stage researchers Harutyun Gyulasaryan and Vardges Avagyan visited twinning partner University of Duisburg-Essen (UDE). During the visits to UDE, the young Armenian researchers were trained in structural and magnetic characterization. In particular, they learnt how to work with X-ray diffraction (XRD), transmission electron microscopy (TEM) and physical property measurement system (PPMS). Also, they learnt to conduct experiments, collect experimental data and perform statistical and graphical analysis to illustrate the correlation between their data. Furthermore, the IPR-NAS early-stage researchers took an active participation in Prof. Farle's weekly group seminars "Magnetic Nanostructures" and "Literature Reviews of Current Physics Problems".





News (continued)

February 2023, IPR-NAS Senior Researchers visit UDE

IPR-NAS senior researchers Aram Manukyan and Armine Ginoyan visited the University of Duisburg-Essen (UDE). During their visit the training and education they received was focused on structural and magnetic investigation of Fe-Fe₃O₄ “core-shell” nanoparticles in the carbon matrix synthesized by solid-phase pyrolysis of iron phthalocyanine (FeC₃₂H₁₆N₈) as well as carbon coated Fe-Fe₃C nanoparticles synthesized by single-stage solid-phase pyrolysis of ferrocene (FeC₁₀H₁₀). Furthermore, they received training in X-ray diffraction, high resolution transmission electron microscope and magnetic investigations.

March 2023, International Conference “APRICOT” and Third Summer School

A combined 1st APRICOT (Armenia's Perspectives in Current Oncology Theranostics) International Conference with the subtitle “Magnetic nanomaterials in biomedicine: synthesis and functionalization” and Third Summer School were held in Yerevan, Armenia during 1-4 March 2023. The combined Conference and Summer School focused on synthesis, structural and magnetic characterization of magnetic nanohybrids and their various biomedical applications such as bio-separations, hyperthermia treatment, drug delivery and toxin removal, medical diagnostics, and sensing devices. Being the first in Armenia, APRICOT brought together the scientific community of physicists, chemists and biologists to discuss the latest developments in the production and characterization of magnetic nanomaterials and their biomedical applications. 103 people from 11 countries attended the "1st APRICOT Conference / Third Summer School" event. Among them were 19 Professors, 36 Doctors and 32 early-stage researchers.



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