Report on the outcomes of a presentation and participation in a ITC Conference[1]

Action number: CA21126

Grantee name: Mahammad Baghir Baghirov

Conference Details

Conference title: 20th Nanoscience and Nanotechnology Conference

Conference web-page: web-page: https://nanotr.org/

Conference venue[2]: [3]: İzmir Institute of Technology (IZTECH), İzmir, Türkiye

Accepted contribution details

Title of the presentation: Effect of GO Nanofiller Concentration on the Dielectric Properties of GO–PVA–AgNW Nanocomposites

Co-authors: Mustafa Muradov

Title of the session: Polymers, Composites & Properties

Outcome of the conference participation

Participation in NanoTR-20 with my oral presentation entitled "Effect of GO Nanofiller Concentration on the Dielectric Properties of GO–PVA–AgNW Nanocomposites" provided significant scientific visibility and valuable opportunities for professional networking. During the presentation, I introduced a newly developed series comprising PVA/AgNW and GO–PVA–AgNW nanocomposites containing 0.4, 0.8, 1.5, and 2.0 wt.% GO. I emphasized the use of silver nanowires instead of conventional silver nanoparticles and discussed the potential of these materials for electromagnetic shielding, supercapacitor, and optoelectronic applications.

I presented the synthesis procedure and the structural, morphological, optical, and dielectric characterization of the nanocomposites using X-ray diffraction, scanning and transmission electron microscopy, UV–Vis spectroscopy, and dielectric measurements. Particular attention was given to dielectric permittivity, dielectric loss, and AC conductivity measured over the frequency range of 120 Hz–1 MHz and from room temperature to 373 K. The concentration-dependent results demonstrated how the incorporation of GO and AgNWs influences the functional properties of the polymer matrix and highlighted the potential of this relatively new material system for further development.

The presentation was attended by more than 50 participants and generated over ten questions. The discussion covered the synthesis route, methods for obtaining a homogeneous filler distribution, prevention of oxidation, minimization of agglomeration, the number of GO layers, and the calculation and significance of microstrain. Further questions concerned the AC-conduction mechanism, changes in displacement current following AgNW

[1] This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the Grant Holder Manager to verify the grant documents compliance and proceed with the payment.
[2] For an online conference, specify virtual participation; for hybrid conferences, specify whether it is an in-person or virtual participation.
[3] For an online conference, specify virtual participation; for hybrid conferences, specify whether it is an in-person or virtual participation.

incorporation, and why displacement current constitutes a major contribution in these materials. The high level of audience engagement demonstrated strong interest in both the preparation technology and the interpretation of the electrical properties. After the session, more detailed individual discussions were held, particularly regarding microstrain calculations and their relevance to structural analysis.

The feedback received also helped define the next stages of the research. Future studies will investigate the effect of varying AgNW concentration, while subsequent presentations will provide a more detailed analysis of gamma-irradiation effects..

The conference also facilitated discussions with a professor and research group planning new studies on PVA-based polymer nanocomposites. We discussed the synthesis of new composite systems, collaborative research, joint scientific publications, and future project proposals. Information was also shared on COST Actions and the general application process. Google Scholar profiles, email addresses, and other contact details were exchanged, and an initial agreement was reached to organize an online meeting between the two research groups after the beginning of the academic semester. Overall, the conference strengthened my professional network, provided constructive scientific feedback, and created a concrete basis for sustained institutional collaboration and joint research

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Applicant enters max. 500 word summary here.

Acknowledgement of inclusion of necessary supporting documents to claim the grant

I confirm that the following documents have been uploaded on e-COST as an integral part of this report:

- the certificate of conference attendance issued by the conference organiser.

- the programme of the conference or book of abstracts / proceedings indicating the presentation (oral) of the grantee.