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Occupation or position held: Postdoctoral Researcher at the Aristotle University of Thessaloniki (Physics Department) – Magnetic Nanostructure Characterization Technology & Applications (Magna Charta) lab.

About myself: I am Antonios Makridis, a dedicated physicist with a strong academic background and extensive expertise in magnetic nanoparticles and their diverse applications. In 2019, I successfully completed my Ph.D. at Aristotle University of Thessaloniki's Physics Department, where I focused on the biological and industrial implications of magnetic nanoparticles. Following the completion of my doctorate, I was honored to be awarded a prestigious postdoctoral position at the Center for Interdisciplinary Research and Innovation (CIRI-AUTH), supported by a State Scholarships Foundation (IKY) scholarship. During this period, I excelled as a material science and physics researcher, particularly in the synthesis of iron-based magnetic nanostructures and their application in biological contexts. Throughout my academic journey, I secured a valuable research fellowship that allowed me to work collaboratively at Aristotle University's Departments of Physics and Chemistry. My research revolved around advancing the field of Magnetic Particle Hyperthermia, where I was instrumental in developing a standardized magnetic hyperthermia protocol. This endeavor involved investigating various nanoparticle systems, such as metal oxides and monometallic and bimetallic structures, and exploring their synthetic properties, structural and magnetic characterization, and potential use as magnetoelectric systems. As a testament to my commitment to knowledge dissemination, I served as a school ambassador in a Twinning | Horizon 2020 research institutional networking program of nanohybrids. My role was to mentor and train young researchers in robust structural and magnetic characterization techniques. I am proud of my extensive collaborations with various esteemed European Institutes, which have enriched my understanding of iron magnetic nanoparticles and their immense potential in magnetic hyperthermia applications. With a passion for scientific exploration, I constantly seek to advance my research interests, which encompass the chemical synthesis and characterization of diverse nanoparticle types. My work aims to address specific applications and delve into pure scientific curiosity, paving the way for groundbreaking advancements in this field. Furthermore, my expertise lies in standardizing and developing new experimental protocols to optimize the applications of modern nanoparticles. In my academic journey, I have successfully published 32 manuscripts in reputable peer-reviewed journals, earning 1074 citations by 940 documents as of Oct 2024 (Scopus). In addition to my academic achievements and research contributions, I am honored to serve as an editor in two esteemed journals. Specifically, I hold the esteemed role of Editor for the Special Issue "Advances in Multifunctional Magnetic Nanomaterials" in the journal "Magnetochemistry." This role allows me to actively contribute to the advancement and dissemination of cutting-edge research in the field of multifunctional magnetic nanomaterials. Furthermore, I also hold the position of Editor in the journal "Hybrid Advances" published by Elsevier. This prestigious responsibility enables me to stay at the forefront of hybrid materials research and facilitate the publication of groundbreaking studies in this rapidly evolving field. Additionally, I am proud to contribute to the scientific community by serving as a valued reviewer for several international scientific journals. In conclusion, my profound dedication to academic excellence, coupled with my outstanding research accomplishments and contribution to the scientific community, make me an ideal candidate for an academic position. I am eager to continue my academic journey and drive innovative research in the field of modern applied magnetism, with a particular emphasis on pioneering novel magnetic structures and devices utilizing cutting-edge 3D printing technology.

Research Experience:

1. Supple Graphene Bio-Platform for Alzheimer's Disease Detection (2D-BioPAD)

- Horizon 2023
- Developed a cost-effective, non-invasive point-of-care tool for early detection and monitoring of Alzheimer's Disease.
- Focused on Subjective or Mild Cognitive Impairment (SCI/MCI).

2. Magnetic Nanohybrids for Cancer Therapy (MaNaCa)

- Horizon 2020 – Framework Programme for Research and Innovation (2014-2020)
- Supervised and trained early-stage researchers on magnetic nanoparticles and magnetic hyperthermia.
- Organized dissemination activities, joint publications, and training workshops.

3. Exploitation of Field Effects on Nanoparticulate Carriers

- Physics Dept, Aristotle University of Thessaloniki, Greece
- Conducted research on nanoparticulate carriers for biomedical applications.
- Scientific Coordinator: Prof. Mavroeidis Angelakeris.

4. Short Term Scientific Mission (STSM) at Erasmus MC Cancer Institute

- Apr 2017
- Conducted research on nanoparticle-specific loss power measurement.
- Under the guidance of Prof. Gerard Van Rhoon.

5. Smart-MNPs for Magnetic Resonance Imaging (MRI)

- Chemistry Dept, Aristotle University of Thessaloniki, Greece
- Investigated "Smart" magnetic nanoparticles probes for MRI.
- Co-financed by the European Union and Greek national funds.

6. Short Term Scientific Mission at Department of Physics in Duisbourg

- Jun 2015
- Conducted research under the IKYDA 13-15 academic exchange program.

Five Key-publications

1. C. Martinez-Boubeta, K. Simeonidis, **A. Makridis**, M. Angelakeris, O. Iglesias, P. Guardia, A. Cabot, L. Yedra, S. Estradé, F. Peiró, Z. Saghí, P. A. Midgley, I. Conde-Leborán, D. Serantes and D. Baldomir "Learning from Nature to Improve the Heat Generation of Iron-Oxide Nanoparticles for Magnetic Hyperthermia Applications", *Scientific Reports*, 3:1652, (2013). (I.F. 5.578)
2. **A. Makridis**, I. Chatzitheodorou, K. Topouridou, M. P. Yavropoulou, M. Angelakeris, C. Dendrinou-Samara "A facile microwave synthetic route for ferrite nanoparticles with direct impact in magnetic particle hyperthermia" *Materials Science and Engineering: C*, 63:663-670, (2016). (I.F. 3.088)
3. **A. Makridis**, M. Tziomaki K. Topouridou, M. P. Yavropoulou, J. G. Yovos, O. Kalogirou, T. Samaras, M. Angelakeris, "A novel strategy combining magnetic particle hyperthermia pulses with enhanced performance binary ferrite carriers for effective in vitro manipulation of primary human osteogenic sarcoma cells" *International Journal of Hyperthermia*, 1-21, (2016). (I.F. 3.589)
4. **A. Makridis**, S. Curto, G. C. van Rhoon, T. Samaras, & M. Angelakeris "A standardisation protocol for accurate evaluation of specific loss power in magnetic hyperthermia." *Journal of Physics D: Applied Physics*, 52.25:255001, (2019). (I.F. 3.178)
5. **A. Makridis**, N. Okkalidis, D. Trygoniaris, K. Kazeli and M. Angelakeris, "Composite magnetic 3D-printing filament fabrication protocol opens new perspectives in magnetic hyperthermia", *Journal of Physics D: Applied Physics*, (2023). (3.409)