CURRICULUM VITAE

Date: February 2025



NAME DATE AND PLACE OF BIRTH NATIONALITY FAMILY STATUS LAST STATUS Elias Sideras-Haddad 28 January 1959, Alexandria, Egypt South African / Greek Married with two children. Professor Emeritus-School of Physics, Wits University, South Africa <u>Elias.Sideras-Haddad@wits.ac.za</u> esideras@uniwa.gr

EMAIL:

TERTIARY EDUCATION

DEGREE	YEAR	SUBJECT	UNIVERSITY
BSc	1982	Physics and Maths	Patras-Greece
BSc(Hons)	1984	Physics	Patras-Greece
MSc. (<u>Cum Laude</u>)	1989	Nuclear Physics WITS-South Afric	
Ph.D.	1994	Nuclear-Solid State Physics	WITS-South Africa

ACADEMIC INTERNATIONAL STATUS



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EMPLOYMENT HISTORY

18.01.84- 18.01.85	General Motors Car Industry in Greece	Unskilled Labourer/Factory Worker	
20.02.85 – 31.12.89	NPRU / Schonland Research Centre for Nuclear Sciences - Wits University	Personal Research Assistantship to Director (Prof. Sellschop)	
01.01.93 - 25.4.95	Schonland Research Centre for Nuclear Sciences - Wits University	Research Officer	
01.05.95 - 30.4.97	Lawrence Livermore National Laboratory, California, USA	Research Officer	
1.06.1997- 31.12.2002	Schonland Research Centre for Nuclear Sciences - Wits University	Manager of the Nuclear Microprobe Research Facility / Development of the Accelerator Mass Spectrometry Facility (AMS)	
01.01.2003- 2006	School of Physics / Wits University	Senior Lecturer	
2006–2010	School of Physics / Wits University	Associate Professor	
2010 -2025	School of Physics / Wits University	Director of the MPRI (Materials Physics Research Institute) - Full Professor	
2011 -2025	School of Physics / Wits University	Full Professor	
2025-	School of Physics / Wits University	Professor Emeritus	
2025-2026	University of West Attica	Professor Emeritus – Visiting Professor	

ACADEMIC ACHIEVEMENTS AND AWARDS

- Patras University Scholarship for being among the top 10% in the University Entrance National Exam
- Certificate of Merit for MSc Degree with Distinction. (Cum Laude)
- CSIR-Assistantship to Prof. J.P.F. Sellschop 1986-1989
- University Ph.D. Senior Bursary 1990-1992
- FRD-PhD Bursaries 1991, 1992
- De Beers Post-Doctorate Scholarship 1993.

- "Man of the Year Award" finalist 1998 (Greek Chamber of Commerce and Industry of Southern Africa Section for Academic Achievements)
- First Prize for best poster presentation at the 10th Intern. Conf. on Accelerator Mass Spectrometry in Japan, 2003.
- NRF (National research Foundation) Rated Scientist over the last 25 years.
- NRF Focus Area Grant Holder Awardee 2007-2010
- Recipient of the Centre of Excellence in Strong Materials funding, 2007-present.
- Awarded Sabbatical Research leave during the period 2007-2008. Spend most of it at iThemba LABS and research visits to Berkeley, UC Santa Barbara, and GANIL-France.
- NRF Focus Area Grant Holder Awardee (Competitive Program for Rated Researchers) 2015-2019
- Funding from the DST-NRF Centre of Excellence (2006 2019).
- NRF Grant: Incentive Funding for Rated Researchers (2015 2018).
- NRF Grant Holder: South Africa Russia agreement JINR (Dubna) 2020-2024
- Stavros Niarchos Scholarship 3 months research visit to the University of West Attica Athens, Greece
- Erasmus+ Awardee (University of West Attica Athens, Greece) during 2018, 2019, 2021
- Professor Emeritus University of West Attica Athens, Greece

POSTGRADUATE STUDENT SUPERVISION

I have supervised and co-supervised approximately 25 postgraduate students (13 PhD and 12 MSc students)

Outstanding Student Awards

• My student, Ms H. Jivan, was granted the <u>*The 2018 L'Oreal-UNESCO Award</u>* For Women in Science - Africa</u>

MEMBER OF ORGANISATIONS-INSTITUTES

- Member of the New Ultra-Hard Materials Group, Centre of Excellence (CoE) in Strong Materials (DST-WITS)
- Member of the Materials Physics Research Institute (MPRI), School of Physics-WITS
- Member of the iThemba LABS Users Committees

<u>MEMBER OF COMMITTEES</u>

- Elected member of the Greek NUSAS for Patras University 1979-1981
- Member of the United Democratic Front (UDF) / Human Rights Commission Johannesburg 1989-1991

MEMBER OF ACADEMIC / RESEARCH COMMITTEES

- Member of the Programme Advisory Committee (PAC) of the iThemba LABS, Faure, Cape. 2002 2006
- Member of the Physics Executive Committee of the School of Physics University of the Witwatersrand. 2003 –
- Founding member of the Schonland Research Institute's Transformation Committee 2004-2005
- Member of the Faculty of Science Research Committee (FRC) University of the Witwatersrand. 2009 –
- Deputy- Chairman of the iThemba LABS Users Committee 2012
- Chairman of the iThemba LABS Users Committee 2013-2015
- Member of the Advisory Council to the iThemba LABS Director 2012-2015
- Member of the Teaching and Learning Committee –School of Physics/WITS
- Acting Group Head at iThemba Labs-Johannesburg: Occasionally during my sabbatical in 2008
- Member of 5 Year Review Committee for the School of Computational and Applied Mathematics 2010
- Member of 5 Year Review Committee for the School of Animal Plant and Environmental Sciences 2012
- Member of the NRF Focus Areas Assessment Committee 2009
- Member of the NRF NNEP (Nanotechnology National Equipment Program)Assessment Committee 2010
- Member of the NRF International agreements Assessment Committee 2010
- iThemba LABS (Gauteng), User Group Committee (2013- Chairman)
- Member of the Convocation of the University of the Witwatersrand
- Member of the Senate of the University of the Witwatersrand
- Member of the Academic Freedom Committee of the University of the Witwatersrand
- Member of the NRF NNEP (Nanotechnology National Equipment Program)Assessment Committee 2020-2022
- Advisory Committee Member UNIWA/Greece

INVITED SPEAKER IN INTERNATIONAL CONFERENCE :

Invited Talk: Hunting Down Solar Neutrinos; an Extraordinary South African Particle Physics Safari.

E. Sideras-Haddad

Conference on Neutrino and Nuclear Physics (CNNP2020) Arabella Hotel and Spa, South Africa, 24-28 February 2020, https://www.youtube.com/watch?v=okCMD4LFYLc

CHAIRMAN OF POST-GRADUATE SCHOOLS:

• "Millennium School 2002 on Nuclear and Particle Physics and Applications", January 6-12, 2002, Skukuza.

- "Millennium School 2004 on Nuclear and Particle Physics and Applications", January 2004, iThala Zululand.
- "iThemba School 2008 on Nuclear and Particle Physics and Applications" ", January 8-14, 2008, Skukuza.

One of the major aims of the Millennium School is to meet certain goals of the Research Capacity Development (RCD) of the South African National Research Foundation (NRF) in contributing towards the improvement of research development for designated disadvantaged groups

MEMBER OF ORGANISING COMMITTEES OF INTERNATIONAL CONFERENCES

- International Conference Hyperfine Interactions in Durban 1998
- 6th International Conference on Nuclear Microprobe Technology and Applications' in Stellenbosh 1998.
- International Conference on Fundamental and Applied Aspects of Modern Physics' in Luderitz Namibia 2000
- Workshop on Dimuon Physics in ion-ion Collisions at LHC, Kruger National Park 3-8 June 2004
- International Conference on Atomic Collisions in Solids' South Africa 2008.
- High Energy Particle Physics Workshop (HEPPW2015)
- High Energy Particle Physics Workshop (HEPPW2017), February 1st-3rd 2017, iThemba LABS Gauteng, South Africa.
- Conference on Neutrino and Nuclear Physics (CNNP2020) Arabella Hotel and Spa, South Africa, 24-28 February 2020

Research-Related Activities

Member of the URC recognized Nuclear Structure Research Programme (2003-) Member of the FRC recognized Nuclear Structure Research Group (2006-) Member of the URC recognized Materials Physics Research Institute- MPRI (2008-)

Director of the Materials Physics Research Institute- MPRI(2010-)

The MPRI carries out unrestricted research in the interdisciplinary field of materials physics. It engages a wide variety of topics in the subject encompassing basic, strategic and applied research and emphasises originality, creativity and cutting edge work of international standard. As such its research is well matched to national priorities in the areas of advanced materials. It consists of 15 full time PhD members of staff in the University of the Witwatersrand and 5 outside PhD members. The Institute has each own sample preparation labs (DC/AC Sputering, RF Sputtering, ECR, Laser Ablation, Single Crystal grower), I-V and Magnetoresistance low temperature high frequency Labs, Raman, XRD, Brilluin Scattering, UV and IR absorption Labs, NMR, ESR, Mossbauer Labs and an Electron Microscope and AFM facility. The research history of the MPRI spans over 50 years with hundreds of research papers published.

ACHIEVMENTS IN THE NEWS:

- The Star 2004 (South African newspaper)
- Reuters, July 16, 2004: Past Nuclear Tests May Unlock Africa's Ivory Sales
- <u>**BBC**</u> *World* <u>Service The</u> *World Today* on Air 06:30 August 2004: Fighting Elephant Poaching with Nuclear Techniques
- **CNBC Africa** November 19 2010: <u>Technology Aiding Fight Against Elephant Poachers</u> <u>– Also in *YouTube*</u>
- You Tube video of my invited talk in the Conference on Neutrino and Nuclear Physics (CNNP2020)
- Attica TV Greece 40 minutes Interview regarding my <u>Fullbright/Niarchos</u> <u>Scholarship</u> in relation to 3 months research visit in the University of West Attica-Greece.

INTERNATIONAL PATENTS

- 1. Patent on dating elephant tusks using the "Nuclear Bomb" pulse as calibration for radiocarbon analysis. It enables to pinpoint the years of birth and death of the animal. It can beused to impose a time period after death that the tusks cannot be traded. In this manner it can force syndicates to wait for say ten years before they can trade even illegally. Thus, it could put poaching syndicates out of business. The work was awarded first prize in the AMS conference in Japan and many international interviews in the news have taken place since then.
- 2. A new patent has been filed within the Wits Enterprise in August 2019 regarding the production of "Magnetic Diamond"! This is an exciting new research development achieved with Mr. Thuto Makgato (PhD student of Prof. Sideras-Haddad). The possibilities of spin valves in diamond-based semiconductors could have enormous implications for the spintronics/electronics industry. Wits Enterprise is presently processing the patent.

EXTERNAL EXAMINER OF OTHER INSTITUTIONS

Nuclear Physics Honours at UNISA (2000- various years) Reviewer of the Physics Dept. at UNISA (2017)

SUMMARY OF RESEARCH

My research interests are in nuclear structure physics as well as in ion-solid interactions. A large part of my research has focused on using nuclear solid state physics techniques (hyperfine interactions and ion solid interactions based on ion beam analysis methods) in the study of Diamond. I have been involved in the studies of mechanisms of nuclear reactions with Heavy ions at the energy regime between 100 MeV and 400 MeV and Nuclear Structure studies of Giant and Pygmy Resonances using K600 magnetic spectrometer at the cyclotron at the iThemba LABS. In addition, over the years, I have obtained considerable technical experience in nuclear instrumentation, electronics, as well as vacuum and accelerator technology. I have worked extensively with different accelerator systems: single-ended and different Tandem Van de Graaff accelerators and have been involved in the upgrade and new design of Accelerator Mass

Spectrometry (LLNL, Schonland) and nuclear microprobe systems both in terms of technology and beam optics calculations. This resulted in my involvement in teams developing an Accelerator mass Spectrometry Facility at iThemba LABS – WITS Campus. Over the last couple of years, I am leading the Wits CERN-ATLAS team in developing radiation hard materials for High Energy Physics facilities.

Research Rating:

1. Rated by the National Research Foundation (NRF) in two consecutive occasions

- C3 category
- Upgraded to C2 category
- 3. NRF Grant Holder (2005-2009) : Diamond Based Nanotechnologies using Highly Charged Ions (Berkeley-USA, GANIL-France)
- 4. Successful application in the CPRR (Competitive Program for Rated Researchers)/NRF for the period 2010-2015.
- 5. NRF Grant Holder (Competitive Program for Rated Researchers (Nuclear Structure studies) (2015-2018)

Hosting International Academics

I applied and motivated to host Dr. Vladimir Ponomarev from the Nuclear Physics Institute of the Technical University, Darmstadt -Germany for 2013 and 2014 (expected second visit). As a result, Dr. Vladimir Ponomarev was awarded the prestigious WITS "Distinguished Visiting Scholar Award".

Visiting Positions

iThemba LABS: External User of Cyclotron, since 1989-

Max Plunk Institute in Stuttgart: A visit in 2001 using the positron accelerator

Lawrence Livermore National Lab: Post-doctoral Fellow 1995-1997

Lawrence Livermore National Lab: Research Associate at the Centre for Accelerator Mass Spectrometry (CAMS) since 2001.

Lawrence Berkeley National Lab: Research Associate at the Electron Beam Ion Trap Facility since 2002, approximately 5 visits.

GANIL – France: A visit in 2008 using the ECR Highly Charged Ion facility.

Max Plunk in Heidelberg: A research visit in 2011 using the Electron Beam Ion Trap Facility.

<u>University of West Attica</u> - Athens: Teaching and Research visits through the Erasmus+ program (2018-2019)

<u>CMAM (Centre for Materials Microanalysis</u>) University of Autonoma – Madrid, Spain (5 visits from 2013 to 2018)

INFN (Italian National Institute for Nuclear Physics) – Catania (January 2020)

INFN (Italian National Institute for Nuclear Physics) – Florence (September 2021)

JINR (Joint Institute for Nuclear Physics) _ Russia (September 2023)

PUBLICATION LIST

<u>h-index: 84</u>

Scopus: 726 Refereed Articles

Citations: 27662

Fields:

- <u>NUCLEAR PHYSICS</u>
- <u>NUCLEAR-SOLID STATE PHYSICS</u>
- <u>ATLAS-CERN</u>