Curriculum Vitae: Prof. Dr. Samir Lounis

Personal Information
Family name, first name: Lounis, Samir
Date and place of birth: 16.09.1977 in Algeria
Nationality: Algerian / German
Mail/Business: Peter Grünberg Institut (PGI) and
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- **Education**

2003 – 2007 PhD thesis: *Theory of magnetic transition metal nanoclusters deposited on surfaces.* With Distinction-Summa Cum Laude, supervised by Prof. S. Blügel and Prof. P. H. Dederichs at Forschungszentrum Jülich & defended at RWTH-Aachen University

2000 – 2002 Magister thesis: *Study of the magnetic configurations of surfaces of FeRh binary ordered Alloy and Ni/Pt multilayers by the TB-LMTO method*. Very good with Jury Congratulations, supervised by Prof. M. Benakki and Dr. C. Demangeat at Mouloud Mammeri University, Tizi-Ouzou (Algeria) and IPCMS (CNRS), Strasbourg (France).

1995 – 1999 "Diplôme d'Études Supérieures" in Physics, Mouloud Mammeri University, Tizi-Ouzou

- **Current Position**

Since 2020 University Professor in theoretical physics, University of Duisburg-Essen

Since 2011 Head of *Funsilab* (*Functional nanoscale structure probe and simulation laboratory*) at Forschungszentrum Jülich, Germany

- **Previous Positions**

2021 – 2022 Invited Professor at Sorbonne Paris Nord University

2015 – 2020 Junior Professor, chair of Theory of Nanospintronics at the RWTH – Aachen University

July 2013 Guest scientist at CIN2 (CSIC) in Bellatera, Spain, visiting Prof. Nicolas Lorente

2010 – 2011 Research scholar at the physics department of the University of California at Irvine in the group of late Prof. Douglas L. Mills. Funded by the A. von Humboldt foundation.

2007 – 2009 Postdoctoral researcher at the Institute of Solid State Physics (IFF) in Forschungszentrum Jülich, Germany.

2003 – 2007 Research assistant at the IFF in Forschungszentrum Jülich, Germany.

2000 – 2003 Research assistant at University Mouloud Mammeri of Tizi-Ouzou, Algeria.

Summer 2001 Guest Scientist at the Institute for Material Physics and Chemistry of Strasbourg (IPCMS-CNRS), France.

- **Scientific contributions**

More than 110 publications in peer reviewed journals (2 in Science, 2 in Science Advances, 2 in Nature Physics, 17 in Nature Communications, 2 Communication physics, 2 in Nature Scientific Reports, 8 in Physical Review Letters, 1 in Nanoletters, 3 in PRB Letter/RC), 5 reviews, 2 book contributions, one popular scientific article; 84 invited talks; several organized workshops, focus sessions, schools & hands-on.

- **Awards and honors (collected by years)**

2022 – Invited Professorship at Sorbonne Paris Nord University

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2016 – Consolidator grant from the European Research Council (ERC) to fund DYNASORE (Dynamical magnetic excitations with spin-orbit interaction in realistic nanostructures)

2015 – Elected member of the Arab-German Young Academy of Sciences and Humanities (AGYA) at the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW)

2014 – (i) Offer for a Junior Professor position at the RWTH-Aachen University, Germany;
(ii) Qualification as Physics Professor, Section 28, Conseil National des Universités, France

2010 – (i) Young Investigator group from the Helmholtz Association of German Research Centers
(ii) Finalist of the Psi-k Heine Young Investigator Award from the Psi-k Network for outstanding research in computer simulation of electronic structures

2009 – (i) Feodor-Lynen fellowship from the Alexander von Humboldt Foundation;
(ii) DFG fellowship for post-doctoral research; declined
2008 – (i) Friedrich Wilhelm Prize awarded biannually to two outstanding PhD dissertations by the faculty for Mathematics, Informatics and Natural Sciences from RWTH-Aachen
(ii) 2nd Winner of the Günter-Leibfried Prize from the Forschungszentrum Jülich for the best popular scientific written and oral communications for a general public
(iii) Cover page of Physical Review Letters Vol. 101, Issue 10
(iv) ThyssenKrupp Electrical Steel Dissertation Prize from the AG Magnetismus of the German Physical Society for the best German PhD thesis in Magnetism
2007 – Borchers-Plakette from the RWTH-Aachen for excellent PhD thesis
2002 – Scholarship for a PhD thesis from the overseas research student (ORS) awards committee in London
2000 – Valedictorian of the physics post-graduate program at Mouloud Mammeri University
1999 – (i) Successful national exams for post-grad. positions at the ENS Algiers and University of Bejaia
(ii) Valedictorian of the Physics graduate program at Mouloud Mammeri University

• **Supervision**

Master: (1) D. S. G. Bauer (Atomic spin-dynamics in confined magnetic nanostructures'08); (2) J. Bouaziz (Chiral magnetism of adatoms induced by the Rashba electron gas'13); (3) S. Brinker (Static and dynamical currents in deposited nanostructures'16), prized as the 2017 best Master thesis from the AG Magnetismus of the German Physical Society; (4) J. Sukert (TITAN: A code and its applications for time-dependent transport and angular momentum in nanostructures'18);(5) I. Gede Arjana (Interaction of magnetic skyrmions with transition metal clusters'18); (6) U. Aceves (Theoretical investigation of in-gap states emerging from magnetic nanostructures deposited on superconductors'20); (7) A. Montero (Investigation of spin-excitations of nanostructures on surfaces'21)

PhD: (1) S. Heers (Effect of spin-orbit scattering on transport properties of low-dimensional dilute Alloys'11); (2) B. J. Schweflinghaus (First-principles investigation of inelastic magnetic excitations in nanostructures deposited on surfaces'15); (3) S. Brahimi (Ab-inito study of magnetic properties of surfaces and nanostructures of metallic binary alloys'17); (4) D. M. Crum (partly– Advanced modeling for end-of-the-roadmap CMOS and potential beyond-CMO applications'16); (5) J. Bouaziz (Spin-orbitronics at the nanoscale: From analytical models to real materials'19); (6) O. Messaoudi (Physical properties of Fe, Co and Ni monolayers deposited on TMDs'19); (7) F. dos Santos (First-principles study of collective spin excitations in noncollinear magnets'19); (8) H. Kouarta (Study of structural, electronic and magnetic properties of Fe-intercalated transition metal dichalcogenides'20); (9) S. Brinker (Complex magnetism of nanostructures on surfaces: from orbital magnetism to spin excitations'20), prized as the 2021 best PhD thesis from AG Magnetismus of the German Physical Society; (10) H. Hamamera (expected in 2022); (11) S. Shehada (expected in 2022); (12) U. Aceves (expected in 2023); (13) A. Alia (expected in 2023); (14) N. Abuawwad (expected in 2024)

Postdocs: 10 – M. dos Santos Dias, M. Bouhassoune, J. Ibanez-Azpiroz, F. Guimaraes, I. Lima Fernandes, J. Chico; J. Bouaziz, F. dos Santos, E. Mendive Tapia, S. Brinker

• **Commission/Committee participation**

—Member of Selection-Committee of applicants for Helmholtz Young Investigator groups from FZ-Jülich.
—Member of the Science and Engineering Expert Committee for large-scale OTKA (Hungarian Scientific Research Fund) proposals (June 2014).
—Faculty opponent and member of exam commissions of several PhD, Master and Bachelor defenses (Germany, Sweden, Algeria, Morocco).

• **Editor**

Since June 2020. Associate Editor for Nature Physics Journal: Computational Materials.

• **Referee**

—for Nature journals, APS journals, IOP journals, Surface Science, Physica B, ….
—Research foundations: German DFG, Chilean CONYCIT, Hungarian OTKA, Swiss SNSF & promotions at different universities

• **Teaching activities**

Since 2021 Regular lectures at University Duisburg-Essen: "Physics of Imperfections: impurities

	on/in surfaces", "Physics of magnetic nano-objects: from spintronics to quantum computing"
Since 2015	Several regular (compulsory and optional) lectures at RWTH Aachen University: "Solid State Physics", "Advanced theoretical solid state physics", "Physics of Imperfections: impurities on/in surfaces", "Density functional theory"
Nov. 2016	Intensive Master Course at the University Mohammed V, Rabat, Morocco
April 2015	School at Congress of quantum physics and chemistry in Tizi-Ouzou, Algeria
Mar. 2014	45th IFF Spring School: Computing Solids – Models, ab initio methods and supercomputing
July 2013	CECAM-supported Hands-on KKR-Computational Tutorial at the University of Warwick, UK
Sep. 2008	Lecturer for the general public at Forschungszentrum Jülich
2000 –2003	Tutorial teacher for Atomic Physics, Condensed Matter and Computational Sciences at the Faculty of Sciences of the Mouloud Mammeri University, Tizi-Ouzou, Algeria

- **Languages** Berber (Native), French, Arabic, English; German (C1 level@Goethe-Institut, B2-certificate)