

Part A. PERSONAL INFORMATION

CV date	18/05/2021
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First and Family name	Vasiliki Mitsou		
Social Security, Passport, ID number	NIE: X5506159M	Age	48
Researcher codes	WoS Researcher ID (*)	D-1967-2009	
	SCOPUS Author ID(*)	57190387217	
	Open Researcher and Contributor ID (ORCID) **	0000-0002-1533-8886	

(*) At least one of these is mandatory

(**) Mandatory

A.1. Current position

Name of University/Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Department	Instituto de Física Corpuscular (IFIC), CSIC – Univ. de Valencia		
Address and Country	C/ Catedrático José Beltrán, 2, 46980 Paterna (Valencia), Spain		
Phone number	+34 963543855	E-mail	vasiliki.mitsou@ific.uv.es
Current position	Científico Titular	From	02/02/2016
Keywords	Supersymmetry; Magnetic monopoles; Higgs bosons; Leptoquarks; Semiconducting detectors; Gaseous detectors; Dark matter		

A.2. Education

Degree	University	Year
PhD in Physics	National and Kapodistrian University of Athens	2002
MSc in Nuclear and Particle Physics	National and Kapodistrian University of Athens, Greece	1998
BSc in Physics	National and Kapodistrian University of Athens	1996

A.3. JCR articles, h Index, thesis supervised...

- Six-year periods of quality research (Sexenios): **3**. Last recognised: 2010-2015, 19/06/2017
- PhD thesis supervised: **2**. (i) Emma Torró Pastor, "Study of supersymmetric signals with R-parity violation with ATLAS/LHC", 2013. (ii) Elena Romero Adam. "Search for supersymmetry at LHC with ATLAS", 2017. Both with distinctions: "Cum Laude" and "Doctor Internacional".
- WoS – Total publications: 1075
- WoS – Total citations: 54,159
- WoS – Mean citations/year, last 5 years: 5,256
- WoS – Mean citations/artículo: 50.38
- WoS – h-index: 106

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Main research activities involve searches for Physics Beyond the Standard Model in high energy colliders. As a member of the ATLAS experiment at LHC at CERN for more than 20 years, I have participated in detector development and construction and in physics studies, and lately in operations and data analysis. The ATLAS experiment co-discovered the Higgs boson, leading to the Nobel Prize in Physics in 2013 of F. Englert and P. Higgs.

I was introduced to research as a CERN Summer Student in 1996 on studies of the development of the ATLAS Transition Radiation Tracker (TRT), which prompted me to continue working with the TRT group as CERN Doctoral Student (1998-2001) and obtain my PhD from the UoA in 2002. A significant part of the thesis was dedicated to feasibility studies for the discovery of the (supersymmetric, SUSY) Higgs bosons. I continued coordinating the TRT development and quality control activities as a CERN Fellow (2001-2003), while I was also studying the ATLAS discovery potential for leptoquarks and co-coordinated the Geant4 validation.

In 2004 I moved to the Instituto de Física Corpuscular (IFIC), a joint centre of CSIC and the University of Valencia, as a European Union fellow, being incorporated in the ATLAS



SemiConductor Tracker (SCT) group, where I contributed to the SCT module assembly. In 2008, as a Ramón y Cajal researcher, I initiated ATLAS SUSY searches at IFIC and I have been coordinating them since then. They mainly involve SUSY with R-parity violation (RPV), in some cases with long-lived particles. Our team set the first limits in the RPV model with bilinear terms, an attractive scenario due to its connection with neutrino physics, the studies of which I lead within ATLAS. We initiated analyses such as the Z-plus-jets and contributed to light-higgsino searches. I have served as liaison of the ATLAS SUSY group to the Statistics Forum (2009-2011), involved in statistical methods for data analysis and interpretation. Several published articles performed in collaboration with theorists from IFIC (monopoles), IFT (μ VSSM), Granada (Z boson) aim at motivating or enhancing future analyses at the LHC and beyond. Since 2016 I hold a position of Tenured Scientist (Científico Titular) at IFIC.

Since 2012 I am the leader (and founder) of the MoEDAL team at IFIC and I currently serve as the MoEDAL Collaboration Board Chair, Physics Analysis Coordinator and Speakers Committee Member. MoEDAL looks for stable, charged, highly-ionising particles at the LHC, such as magnetic monopoles and dyons. The IFIC team is heavily involved in software development, monopole phenomenology, SUSY studies and data analysis. MoEDAL has set the world-best limits on high-charge monopoles, having the best sensitivity among related experiments.

Recently, I joined the International Linear Collider team in studies for the discovery of beyond-Standard-Model physics.

Besides the collider-oriented activities, I maintain a strong interest in astroparticle physics. The first γ -ray burst data analysis testing certain models of quantum gravity stands out as it provided the first bounds on modified photon dispersion relations. Other works involved observational tests of dark energy models with data from supernovae and other astrophysical sources, as well as studies of dilaton effects on dark matter abundance.

Part C. RELEVANT MERITS

C.1. Publications (including books)

- [1] B Acharya et al (69 authors) [MoEDAL Collab.], *First search for dyons with the full MoEDAL trapping detector in 13 TeV pp collisions*, **Phys. Rev. Lett.** **126**, 071801 (2021)
- [2] B Acharya et al (68 authors) [MoEDAL Collab.], *Magnetic monopole search with the full MoEDAL trapping detector in 13 TeV pp collisions interpreted in photon-fusion and Drell-Yan production*, **Phys. Rev. Lett.** **123**, 021802 (2019)
- [3] S Baines, N E Mavromatos, V A Mitsou, J L Pinfold and A Santra, *Monopole production via photon fusion and Drell-Yan processes: MadGraph implementation and perturbativity via velocity-dependent coupling and magnetic moment as novel features*, **Eur. Phys. J.** **C78**, 966, (2018)
- [4] M Aaboud et al (2857 authors), *Search for electroweak production of supersymmetric states in scenarios with compressed mass spectra at $\sqrt{s} = 13$ TeV with the ATLAS detector*, **Phys. Rev.** **D97**, 052010 (2018)
- [5] J A Aguilar-Saavedra, J Bernabeu, V A Mitsou, A Segarra, *The Z boson spin observables as messengers of new physics*, **Eur. Phys. J.** **C77**, 234 (2017)
- [6] G Aad et al (2855 authors), *Summary of the searches for squarks and gluinos using $\sqrt{s} = 8$ TeV pp collisions with the ATLAS experiment at the LHC*, **JHEP** **10** (2015) 054
- [7] G Aad et al (2822 authors), *Search for supersymmetry in events containing a same-flavour opposite-sign dilepton pair, jets, and large missing transverse momentum in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector*, **Eur. Phys. J.** **C75**, 318 (2015)
- [8] P Ghosh, D E López-Fogliani, V A Mitsou, C Muñoz, R Ruiz de Austri, *Probing the μ -from- ν supersymmetric standard model with displaced multileptons from the decay of a Higgs boson at the LHC*, **Phys. Rev.** **D88**, 015009 (2013)
- [9] G Aad et al (3007 authors), *Search for supersymmetry in final states with jets, missing transverse momentum and one isolated lepton in $\sqrt{s} = 7$ TeV pp collisions using 1 fb⁻¹ of ATLAS data*, **Phys. Rev.** **D85**, 012006 (2012)
- [10] L N Epele, H Fanchiotti, C A Garcia Canal, V A Mitsou and V Vento, *Looking for magnetic monopoles at LHC with diphoton events*, **Eur. Phys. J. Plus** **127**, 60 (2012)

C.2. Projects and grants as principal investigator

- *Looking for traces of new physics at high energies in LHC and future e+e- colliders: High precision and direct searches (NewPhys@HEPColliders),* Ministry of Science, Innovation and Universities, 2019-2021, Pls: Juan A. Fuster Verdú & Vasiliki Mitsou [ref: PGC2018-094856-B-I00]
- Agreements for MoEDAL-IFIC group, Generalitat Valenciana, 2017 – 2021
- Tenured Scientist Incorporation Program, “Search for new physics and detector development in ATLAS and MoEDAL experiments at the LHC,” CSIC, 2016–2017
- Grant for the organisation of 16th International Symposium on Particles, Strings and Cosmology (PASCOS 2010), 19–23 July 2010, Valencia, Spain, CSIC
- Project PRECOMPETITIVO “Alignment of the ATLAS Inner Detector using tracks and searches for Supersymmetry at LHC,” Generalitat Valenciana, 2008 [GVPRE/2008/242]
- Grant for the organisation of DISCRETE '08: Symposium on Prospects in the Physics of Discrete Symmetries, 11–16 December 2008, Valencia, Spain, awarded by CSIC
- Ramón y Cajal Incorporation Program, “Performance and Optimisation of the ATLAS Inner Detector and Search for Supersymmetry at the LHC,” Ministry of Science and Innovation, Spain, 2008–2009
- CERN Corresponding Associate: Oct–Dec 2006, Jan–Feb 2011, Apr–Jul 2015

C.3. Research projects and grants (as member/researcher)

- *Contributions to the Inner Detector and the Physics Program of the ATLAS Experiment at the LHC,* Ministry of Economy and Competitiveness, 2016-2018, PI: C. García
- *From LHC Physics to the Keys of the Primordial Universe in the Era of Data,* project of excellence PROMETEO, Generalitat Valenciana, 2017-2021, PI: G. Barenboim
- *Contributions to the ATLAS experiment at the Large Hadron Collider,* Ministry of Economy and Competitiveness, 2013-2015, PI: C. García
- *Grid and E-Science: Data Analysis of the ATLAS Detector and Medical Physics,* integrated action, Ministry of Foreign Affairs and Cooperation, 2011-2013, Pls: S. González de la Hoz & R. Cherkaoui el Moursli
- *Contributions to the ATLAS experiment at hadronic collider LHC,* Ministry of Science and Innovation, 2010 - 2012, PI: C. García
- *Participation in the ATLAS Tracker,* Ministry of Education and Science, 2007-2009, PI: C. García
- *Development of a TIER3 Facility and Preparation for ATLAS Data Analysis at IFIC,* Ministry of Education and Science, 2007-2009, PI: E. Ros

C.4. Leadership roles & responsibilities

- MoEDAL Physics Analysis Coordinator, since 2020
- Member of MoEDAL Speakers Committee, since 2015
- Chairperson of the Collaboration Board of the MoEDAL experiment, since 2014
- Leader of IFIC Valencia Team in the MoEDAL experiment, since 2012
- Coordinator of the ATLAS analyses on Prompt R-parity violating SUSY, 2009 – 2011
- Liaison of the ATLAS SUSY Working Group to the ATLAS Statistics Forum, 2009 – 2011
- Contact person for Searches for Bilinear RPV SUSY in ATLAS, since 2008
- Responsible for electrical performance of ATLAS SCT modules at IFIC, 2004 – 2005
- Co-coordinator of Geant4 validation studies in ATLAS, 2001 – 2002
- Coordinator of design finalisation of ATLAS TRT end-cap, 1998 – 2003

C.5. Administration & committees

- Chair/member of the W&T2 (Fysica) Project expert panel of the Research Foundation Flanders (FWO), 2019-2021
- Jury member substitute for an Associate (2020) & an Assistant Professor (2021) positions at the Dept. of Science & Technology of the Hellenic Open University, Greece
- International Advisory Committee Member: DISCRETE2018, Vienna; DISCRETE2016, Warsaw; DISCRETE2014, London; DISCRETE2014, Lisbon; DISCRETE2010, Rome
- ATLAS Physics & Committees Office Member and Paper Submission Officer, 2011–2012



- Jury member for the VI Edition of the IDEA Awards, organised by the Foundation City of Arts and Sciences, Valencia, Spain, May 2010
- Steering Committee Member of the Biannual Series of Symposia on Prospects in the Physics of Discrete Symmetries (DISCRETE), since 2008
- Coordinator of the Young Researchers Panel (YRP), EU network “The 3rd Generation as a Probe for New Physics,” 2005 – 2006

C.6. Evaluation and peer reviewing

- Evaluation of projects in public calls
 - Master-degree grants for *German Service of Academic Interchange (DAAD)*, 2018
 - Research projects for the *Qatar National Research Fund (QNRF)*, 2016 – 2019
 - Fellowships for *Fund for Scientific Research - FNRS*, Brussels, 2012 - 2021
 - Horizon 2020 *Marie Skłodowska-Curie Individual Fellowships* for the European Commission as Expert and Rapporteur, 2016
 - Fellowships for the European Commission programme *Research Based University Chairs of Excellence - Universities of Paris (RBUCE-UP)*, 2012
 - Projects for the *National Evaluation and Foresight Agency (ANEP)*, 2012
- Referee for Particle Data Group; Eur. Phys. J. C; Int. J. Theor. Phys. (Springer); Astrop. Phys.; Phys. Dark Universe; Karbala Int. J. Mod. Science (Elsevier); Int. J. Mod. Phys. A (World Scientific); J. Phys. G: Nucl. and Particle Phys. (Institute of Physics); Procs. Royal Society A; Phil. Trans. A (Royal Society, UK); Universe; Symmetry; Particles; Sensors; Proceedings (MDPI)

C.7. Conference organisation

- Chair: 5th MoEDAL Collaboration Meeting, 28–29 Jun 2016, Valencia, Spain
- Co-organiser: PLANCK 2016: From the Planck Scale to the Electroweak Scale, 23–27 May 2016, Valencia, Spain
- Co-organiser: 16th International Symposium on Particles, Strings and Cosmology (PASCOS 2010), 19–23 Jul 2010, Valencia, Spain
- Co-chair: DISCRETE '08: Symposium on Prospects in the Physics of Discrete Symmetries, 11–16 Dec 2008, Valencia, Spain

C.8. Editorial activities

- Editorial Board Member in journal *Particles*, published by MDPI, since 2020
- Associate Editor in *Frontiers in Astronomy and Space Sciences* and *Frontiers in Physics*, Swiss Federal Institute of Technology (EPFL), 2014-2019
- Co-editor: Proceedings *DISCRETE 2014: Fourth Symposium on Prospects in the Physics of Discrete Symmetries*, London; Journal of Physics: Conference Series, 631, 2015
- Co-editor: Proceedings *16th International Symposium on Particles, Strings and Cosmology (PASCOS 2010)*, Valencia; Journal of Physics: Conference Series, 259, 2010
- Principal Editor: Proceedings *DISCRETE '08: Symposium on Prospects in the Physics of Discrete Symmetries*, Valencia, Spain, Journal of Physics: Conference Series, 171, 2009

C.9. Awards and distinctions

- XIII Scientific-Technical Prize “City of Algemesi” for young researchers awarded to E. Romero for the PhD thesis “Supersymmetry searches in ATLAS at the LHC” supervised by V.A. Mitsou & J. Bernabéu Alberola, 2018
- Beca Leonardo for Researchers and Cultural Creators by BBVA Foundation, 2017
- Four periods of five-year research achievements (Quinquenios) recognised by CSIC. Last recognised: 2012-2016, on 2/11/2017
- Certification by ANECA granting access to the level of Profesor Titular in the Spanish university system, 2014
- Certification in the Spanish Program I3 (Incentivación de la Incorporación e Intensificación de la Actividad Investigadora) of Recognition of Prominent Research Career, 2011
- IDEA Prize in Fundamental Science by the Foundation “City of Arts and Sciences”, Valencia, Spain. Topic: *The LHC accelerator and the Cosmos connected via the Dark Matter*, 2009