

Shimaa ABUZEID
Ph.D. in Experimental Particle Physics

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Education:

2013 – 2018

Double-Degree of Ph.D.

Ph.D. in Science - Vrije Universiteit Brussel – Brussels, Belgium.

Ph.D. in Nuclear Physics - Ain Shams University – Cairo, Egypt.

“Search for Top Quark Flavour Changing Neutral Couplings with the CMS Experiment at the LHC”, <http://cds.cern.ch/record/002636540?ln=en>

2018

Doctoral Training Programme

Doctoral school of Natural sciences and (Bioscience) Engineering - Vrije Universiteit Brussel (VUB) – Brussels, Belgium.

The certification of completing 60 credits of different training courses during the PhD period that are organized by Doctoral school of Natural sciences and (Bioscience) Engineering at VUB.

2008 - 2011

Master of Science in Experimental Nuclear Physics.

Faculty of Women for Arts, Science and Education - Ain Shams University – Cairo, Egypt.

The thesis entitled "Investigation of Charged Particles Induced Nuclear Reactions on Some Medium Weight Nuclei".

2001 - 2005

Bachelor of Science in Physics - Faculty of Women for Arts, Science and Education - Ain Shams University – Cairo, Egypt.

Experiences:

A. Teaching & Research

2018 – present

Lecturer of Physics - Faculty of Women for Arts, Science and Education - Ain Shams University – Cairo, Egypt.

- Teaching different physics courses for under/graduated students (Experimental Nuclear and High energy particle Physics - General Physics).
- Supervisor under/graduated students in their BSc., MSc. & PhD research.

Feb. 2025 – Present

Postdoctoral Researcher at INFN (Pavia section) – Italy.

- CMS-GEM TC deputy (L2 position – Responsibility of technical services for GEM detectors).

Oct. 2018 – Sep. 2021 & Oct. 2023 – Jan 2025

A council member of the Egyptian Network of High Energy Physics (ENHEP) – Academy of Scientific Research and Technology – Cairo, Egypt.

- CMS-GEM L3 position – Responsibility of the power system for GEM detectors.

Oct. 2021 – Oct. 2023

Postdoctoral Research Fellow at INFN (Pavia section) – Italy.

- CMS-GEM L3 position – Responsibility of the power system for GEM detectors.

Mar. 2020 – Dec. 2020

Postdoctoral Physicist at CMS experiment – CERN – Geneva, Switzerland.

I had the responsibility of the power supply systems of the GEM detector within CMS experiment.

May 2019 – May 2020

Postdoctoral Researcher - Center of Fundamental Physics (CFP) – Zewail City for Science & Technology, Egypt.

-Searching for new physics phenomena with CMS experiment. Mentoring 3 master & PhD students.

2007 – 2018

Teaching Assistant of Physics

Faculty of Women for Arts, Science and Education - Ain Shams University – Cairo, Egypt.

B. Training, Workshops and Conferences

- Sep. 2023** **Organizer/ Speaker and convener of the 6th Conference of Technologies & Instrumentations of Particle Physics (TIPP2023) – Cape town – South Africa.**
Talk on behalf of CMS muon group entitled: “The Power System of GEM-Muon Sub-detector for CMS Phase-II upgrade”. Chairing 3 parallel sessions.
- Jan. 2023** **Participant in “CMS Upgrade Days” – CERN).**
Poster entitled “The Low Voltage Power System of GE2/1 and ME0 for GEM Phase-II upgrade”.
- Sep. 2022** **A speaker in “ME0 Integration Camp and Construction Readiness Workshop” – CERN).**
2 Presentations entitled “The GEM-ME0 LV system” and “The mapping of GEM-ME0 LV system at P5”.
- May 2022** **A speaker in “31st GEM Workshop” – CERN).**
Presentation entitled “The GEM DCS HV-Extension”.
- Mar 2022** **A speaker in “10th Annual Ain Shams University International Congress 2022” – Cairo – Egypt.**
Presentation entitled “GEM Technology for Muons Detection within CMS Experiment at CERN”.
- Mar 2022** **Co-Organizer and Co-chairing of “First Pan-African Astro-Particle and Collider Physics Workshop” – (Fully Virtual).**
- May 2020** **A speaker in “GEM Phase 2 Upgrade Workshop (GE2/1 & ME0)” – CERN (Virtual due to COVID19).**
Presentation entitled “GE2/1 and ME0 Low-Voltage (LV) Power Systems”
- January 2020** **Organization & Participation in “International Conference on Neutrinos and Dark Matter (NDM-2020)” – Hurghada, Egypt.**
- April 2019** **A speaker in “the 8th Annual ASU scientific conference” – Cairo, Egypt.**
Presentation entitled “Particle Physics Research at CERN”
- March 2019** **A speaker in “the 3rd international conference for women in Science Network” - World forum for women in science – Cairo, Egypt.**
Presentation entitled “Top quark Physics with the CMS Experiment at the LHC”
- January 2019** **Participation in organization of “The 7th ENHEP (Egyptian Network of High Energy Physics) School for high-energy physics” - Cairo, Egypt.**
- 2016** **A speaker in the “Top FCNC mini-workshop 2016” – Eguisheim, France.** Presentation entitled “Flavor Changing Neutral Currents in the decay of a top-quark pair to Higgs boson and a (u/c) quark.”
- 2016** **Participation in The “9th International Workshop on Top Quark Physics (TOP 2016)” - Olomouc, Czech Republic.**
- 2015** **A speaker in the “Brussels-Strasbourg-CBNU top quark physics workshop on FCNC” - Chonbuk N. University, South Korea.**
Presentation entitled “Flavor Changing Neutral Currents in top-quark pair decay with same-sign di-lepton final states.”
- 2014** **Participation in the “Belgian-Dutch-German summer schools (BND 2014) and (BND 2015)”.**
- 2014** **Participation in the “7th International workshop on Top Quark Physics (Top2014)” - Cannes, France.**

Publications

2015 – Present

I am coauthor in CMS physics papers since 2015, with more than 500 peer-reviewed articles and Scopus h-index = 80. The updated list of papers can be found here
INSPIRE-HEP: <https://inspirehep.net/authors/1261899?ui-citation-summary=true>

Some Selected 2023

“Production and validation of industrially produced large-sized GEM foils for the Phase-2 upgrade of the CMS muon spectrometer”, M.Abbas, et.al, Nuclear Inst. and Methods in Physics Research, A , V1057, <https://doi.org/10.1016/j.nima.2023.168723> .

“Impact of magnetic field on the stability of the CMS GE1/1 GEM detector operation”, M.Abbas, et.al, JINST , V18, <https://doi.org/10.1088/1748-0221/18/11/P11029> .

2022

“Quality control of mass-produced GEM detectors for the CMS GE1/1 muon upgrade”, M.Abbas, et.al, Nuclear Inst. and Methods in Physics Research, A , V1034, <https://doi.org/10.1016/j.nima.2022.166716> .

- 2021** "Benchmarking LHC background particle simulation with the CMS triple-GEM detector", M.Abbas, et.al, Journal of Instrumentation (JINST), V16, <https://doi.org/10.1088/1748-0221/16/12/P12026>.
- 2020** "Performance of prototype GE1/1 chambers for the CMS muon spectrometer upgrade", M.Abbas, et.al, Nuclear Inst. and Methods in Physics Research (A), V972, (arXiv:1903.02186v2), <https://doi.org/10.1016/j.nima.2020.164104>.
 "Detector Control System for the GE1/1 slice test", M.Abbas, et.al, Journal of Instrumentation (JINST), V15, May 2020, <https://doi.org/10.1088/1748-0221/15/05/P05023>.
- 2018** "Search for the flavor-changing neutral current interactions of the top quark and the Higgs boson which decays into a pair of b quarks at $\sqrt{s}=13$ TeV" - CMS Collaboration DOI: [10.1007/JHEP06\(2018\)102](https://doi.org/10.1007/JHEP06(2018)102).
- 2017** "Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV" - CMS Collaboration DOI: [10.1088/1748-0221/13/05/P05011](https://doi.org/10.1088/1748-0221/13/05/P05011)
- 2012** "Excitation Functions of Deuteron Induced Nuclear Reactions on Iron" - ABU ZEID, Sh., Abd El Wahab, M. Al-Abyad, M. Seddik, U., Arab Journal of Nuclear Sciences and Applications, 45(1) (2012) 129-140.
https://inis.iaea.org/search/search.aspx?orig_q=RN:43018723

Awards & Grants

- 2019** A grant from The Abdus Salam International Centre for Theoretical Physics (ICTP) to support the International Conference on Neutrinos and Dark Matter (NDM-2020) - January 11-14, 2020 - Hurgada, Egypt.
- 2013** 22 months Joint-PhD scholarship from Erasmus Mundus.
- 2015** 2 years Joint-PhD scholarship from The Ministry of Higher Education of Egypt.

Languages

Arabic: Native language **English:** Professional working proficiency
French: Elementary proficiency

Others

Professional skills

- *I am a technical DCS-Central, GEM-DCS and GEM-DOC (on call) shifter, Shift-Leader and guide in the CMS experiment at CERN.* Responsibility for controlling the CMS detector during operation, and providing a safer environment during the daily activities at CMS experiment. Also guide the visitors to CMS experiment from public society.
- *I am authorized to drive and work on mobile elevating working platforms.*
- *I am Authorized first-aider*

Computer skills

- Proficient in Machine Learning, Programming with C++ & Python.
- Experienced in Wincc-OA and JCOP framework for Detector Control System (DCS) development.
- Writing with LaTeX.

Organizational/ managerial skills

- 2011 - 2013** The official representative of Teaching Assistants in the faculty board in the Faculty of Women for Arts, Science and Education – Ain Shams University – Cairo, Egypt.
- 2009 - 2008** Sharing in the organization of two regional scientific conferences in the Middle East - Ain Shams University – Cairo, Egypt.

Outreach

- **Interviews for newspapers, TV and radio**

Some interviews with BBC (Arabic), SkyNews (Arabic), Nile-TV International & other Egyptian /Arabic Journals, TV and Radio channels concern about science and/or role model Women in middle east.

<https://www.youtube.com/channel/UCWNtgWOEOqIWtk8VdiA3dgQ>

- **Public talks about physics & CERN in NGO associations** for young students in Egypt & Arabic speaking countries (Volunteering work).