



Hosting offer for Marie Skłodowska-Curie Postdoctoral Fellowships (PF) 2022 at University of Cyprus / Experimental Particle Physics - CMS Group

[MSCA Postdoctoral Fellowships](#) are individual research grants offering excellent postdoctoral researchers the chance to develop their skills by means of international mobility. Through the implementation of an original and personalised research project, MSCA Postdoctoral Fellowships aim to foster excellence through training and mobility and to equip researchers with new skills and competences in order to identify solutions to current and future challenges.

University of Cyprus Experimental Particle Physics CMS GroupE invites motivated postdoctoral researchers to jointly prepare an application for the [MSCA-PF-2022 call Marie Skłodowska-Curie Postdoctoral Fellowships](#) call ([MSCA-PF-2022](#)) with them as host organisation.

Description of Hosting organisation/group

The University of Cyprus (UCY) is a young and rapidly expanding institute of higher education with more than 7.000 students, 113 laboratories and 800 faculty and staff members. There are 23 departments and 14 research centers, covering a broad spectrum within the life, social, natural and engineering sciences. UCY is the biggest employer in Cyprus for young graduates and researchers. It currently employs about 700 young scientists using external research funds. The Physics Department at UCY is the only tertiary-education institution in Cyprus offering Bachelors (B.Sc.), Master (M.Sc.) and Doctorate (Ph.D.) degrees in Physics.

The CMS group at the UCY Department of Physics is led by faculty members Prof. Fotios Ptochos, Lecturer Halil Saka, and Prof. Panos Razis. The group members are active in trigger and hadron calorimeter subsystems, and pursue beyond the standard model physics searches in hadronic and leptonic final states, involving hadronic top-quark and τ -lepton tagging techniques. The group consists of 2 postdoctoral researchers, 5 graduate and 2 undergraduate students, and the group members assume leading roles in EXOTICA, HIGGS, and SUSY Physics Analysis Groups at CMS. The Department of Physics has numerous research laboratories and infrastructure that cover areas of nuclear and particle physics, photonics and optoelectronics, renewable energies, spintronics and nanomagnetism of novel materials. The CMS group has its own computer cluster and is a key member of the UCY High Performance Computing (HPC) Center.

Department webpage: <https://newdev.ucy.ac.cy/phy/research/general-information>

Topics/expertise

We welcome postdoctoral candidates in a broad regime of beyond the standard model searches with leptonic and hadronic final states. Our research groups pursue inclusive searches over a wide phase space including but not limited to models with new charged and neutral scalar states, heavy fermions, leptoquarks, and dark matter candidates. Therefore, we are able to tailor projects according to the

personal skills and interests of the applicants. Potential supervisors are as follows:

Prof. Fotios Ptochos is a Harvard University Ph.D. graduate and has been active in HEP-research, both in detector development and physics analyses since 1987. He was a member of the CDF collaboration where he worked in heavy flavor and tau-lepton physics and their use in various exotic searches. After he joined the CMS collaboration, he worked in B-physics and in the development of boosted top-quark tagging techniques. He has been working on the identification of τ -lepton hadronic decays in searches for the charged Higgs bosons. He is leading a group that develops L1 trigger algorithms for hadronically decaying tau-leptons using tracking information for the high luminosity LHC run.

Lecturer Halil Saka is a Princeton University Ph.D. graduate. He carried out the first search for a third-generation scalar leptoquarks in the $\tau\tau$ channel and has served as a co-convenor of the CMS EXOTICA Non-Hadronic Working Group where he coordinated several analyses relevant to the proposed project. He has been the lead scientist in a broad research program on BSM physics involving multilepton signatures and has pioneered a number of first-of-a-kind tests of BSM physics signals with the run-2 dataset of the LHC, such as the type-III seesaw inspired heavy fermions, vectorlike tau leptons and light extended Higgs sector states. He has been working on the development of data driven methods for increased precision in the estimation of non prompt leptons in the context of BSM searches at high-luminosity conditions in conjunction with machine learning techniques.

Your profile

- You must have a completed PhD at the time of the call deadline (14 September 2022).
- Candidates must have a maximum of 8 years full-time research experience from the PhD award date until September 14, 2022. Periods of inactivity in research (e.g. unemployment, periods of employment outside research, parental or sick leave) do not count towards the time of research experience.
- For European fellowships, candidates can be of any nationality and must not have resided or carried out their main activity (work, studies, etc.) in Cyprus for more than 12 months in the 36 months immediately before September 14, 2022.
- Highly motivated candidate with an excellent research track record appropriate to career stage, as evidenced by academic publications and other scientific output.

What we offer

- Support and guidance for the preparation of your MSCA PF proposal
- A stimulating, interdisciplinary environment for high-level research.

How to apply?

Indicate your interest by contacting the host institution as follows:

Please contact Lecturer Halil Saka (saka.halil@ucy.ac.cy) or Professor Fotios Ptochos (f.ptohos@ucy.ac.cy) by email with a short CV and a cover letter to indicate your interest to prepare a MSCA-PF application with UCY Experimental Particle Physics group at CMS.

After the supervisor agrees to support you as a MSCA-PF candidate, you can start preparation of MSCA PF project proposal and will be supported further by the Research Support Office of the host university.

For more information, please contact the MSCA coordinator of the host institution: Lecturer Halil Saka (saka.halil@ucy.ac.cy).