Application from	**Kenzie, Matthew**
E-mail Address	matthew.william.kenzie@cern.ch
Job	Fellowship and GET Programmes / Programme des Boursiers et GET / AFC-2013-2/FELL
Application date	28/08/2013 18:32

Personal Details

Title	Mr.
Family Name	Kenzie
First Name(s)	Matthew
Maiden Name (if applicable)	
Gender	Male / Homme
Date of birth	21/01/1987
Nationality	British (GB)
Second Nationality (if applicable)	
Country of Birth	UNITED KINGDOM
Town of Birth	London
Home Address	167 Knights Hill
City	London
Country	UNITED KINGDOM
Postal Code	SE27 0PZ
Landline Phone Number (with international prefix)	
Mobile Phone Number (with international prefix)	+44 7971 264492
What is your mother tongue?	English
Please rate your level of English	English is my mother tongue
Please rate your level of French	B1
Please select any other languages you may speak	

Education

Country	UNITED KINGDOM
Level of Education	UNITED KINGDOM - PhD
Title of Diploma/Qualification Note: Please give the full title in their original language (using Latin characters) and in English or French.	Doctor of Philosophy in High Energy Physics
Attended From	10/2010
Attended To (planned end date for current studies)	04/2014
School/University Name	Imperial College London

Country	UNITED KINGDOM
Level of Education	UNITED KINGDOM - Master

Title of Diploma/Qualification **Note: Please give the full title in their original language (using Latin characters) and in English or French.**	Master of Theoretical Physics Distinction See CV for details
Attended From	10/2009
Attended To (planned end date for current studies)	09/2010
School/University Name	Imperial College London

Country	UNITED KINGDOM
Level of Education	UNITED KINGDOM - Bachelor
Title of Diploma/Qualification **Note: Please give the full title in their original language (using Latin characters) and in English or French.**	Bachelor of Physics with Honours 1st Class See CV for details
Attended From	10/2006
Attended To (planned end date for current studies)	07/2009
School/University Name	Durham University

Country	UNITED KINGDOM
Level of Education	UNITED KINGDOM - A-levels
Title of Diploma/Qualification **Note: Please give the full title in their original language (using Latin characters) and in English or French.**	Maths - A Further Maths - A Physics - A Chemistry - A
Attended From	09/1998
Attended To (planned end date for current studies)	07/2005
School/University Name	The Perse School Cambridge

Employment

Date from	10/2010
Date to	04/2014
Name of your Employer	Imperial College London
Country	UNITED KINGDOM
Title of your Position	PhD student
Job Description	I have worked as a PhD student for the CMS Collaboration Higgs group on the Higgs to two photons decay. I spent two years on placement at CERN. My main responsibilities are writing software and developing analysis techniques for the group, producing publication quality results and interpreting the outcomes, writing documentation and doing shift work on CMS. I have taught some short postgraduate computing courses and am an undergraduate coursework assessor.

Specific Information (Fellows)

When would you like to start working at CERN?	04/2014

What is your motivation for applying for this job?	In the work towards obtaining my PhD I spent two years working at CERN in the CMS Higgs group on the Higgs to two photons decay channel. Contributing to and being part of the discovery of the new boson was a wonderful experience. This position would allow me to continue this research in Higgs decays and its interface, if any, with physics beyond the Standard Model and get involved with the ongoing efforts to find direct evidence of physics beyond the Standard Model. The great advantage of being at CERN is the amount of resources available to young researchers. Most importantly, I think, the benefit comes in the form of personal contact, discussion and collaboration with other driven and intelligent individuals with a vast collective knowledge and experience. Secondly, the proximity to experiments, computing and depth of the physics program are second to none. There are a huge number of wide ranging seminars and a vastness of topics for discussion, learning and research which is unobtainable at many other institutes.
Have you ever worked at CERN before?	Yes - as a Doctoral Student
If you selected "Yes - as a Fellow", please indicate for how long have you been a Fellow (in months)?	
Do you wish to also be considered for a COFUND Fellowship?	Yes
Please indicate for which type of Fellowship you wish to be considered	Research (Experimental physics)
Main field of study	
Secondary field of study	
Tertiary field of study	
Applied physics	
Describe the projects where you used the selected applied physics topics and/or any others that are not listed	
Architecture	
Describe the projects where you used the selected architecture topics and/or any others that are not listed	
Surveying	
Describe the projects where you used the selected surveying topics and/or any others that are not listed	
Chemistry	
Describe the projects where you used the selected chemistry topics and/or any others that are not listed	
Civil engineering	
Describe the projects where you used the selected civil engineering topics and/or any others that are not listed	
Programming Languages	
Describe the projects where you used the selected programming languages and/or any others that are not listed	
Databases	
Describe the projects where you used the selected databases and/or any others that are not listed	
Information Technologies	
Describe the projects where you used the selected information technologies and/or any others that are not listed	
Theory of electrical engineering	

Describe the projects where you used the selected theory of electrical engineering topics and/or any others that are not listed	
Networks and systems	
Describe the projects where you used the selected networks and systems and/or any others that are not listed	
Low and high frequency engineering	
Describe the projects where you used the selected low and high frequency engineering topics and/or any others that are not listed	
Experimental Physics	
Describe the projects where you used the selected experimental physics topics and/or any others that are not listed	
Materials and experimental techniques	
Describe the projects where you used the selected materials and experimental techniques and/or any others that are not listed	
Mathematics	
Describe the projects where you used the selected mathematics knowledge and/or any others that are not listed	
Mechanical engineering	
Describe the projects where you used the selected mechanical engineering topics and/or any others that are not listed	
Safety	
Describe the projects where you used the selected safety topics and/or any others that are not listed	
List of (up to 5) most important publications in refereed scientific journals: reference, title. In each case summarize in 2 lines maximum your personal contribution.	CMS Collaboration, "Observation of a new boson with a mass near 125 GeV in pp collisions at sqrt s = 7 and 8 TeV", JHEP 06 (2013) 081, doi:10.1007/JHEP06(2013)081 - Produced results and statistical interpretation for two photon channel. Developed independent analysis to cross check background and categorisation. CMS Collaboration, "Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC", Phys. Lett. B 716 (2012) 30, doi:10.1016/j.physletb.2012.08.021 - Produced many of final results and plots for two photon channel. Developed independent analysis to cross check background and categorisation. CMS Collaboration, "Search for the standard model Higgs boson decaying into two photons in pp collisions at sqrt 7 TeV" - Contributed towards result production.
Are you a PhD holder or PhD student?	Yes / Oui

Specify submission date, defence date, title of thesis and name of your supervisor; summarize your thesis in maximum 5 lines; give the most significant results obtained.	Title: Properties of the observed Higgs-like resonance around 125 GeV in its decay to two photons at the CMS experiment at the LHC. Supervisor: Prof. Paul Dauncey Submission date: March 2014 Defence date: March - April 2014 I present results of the Higgs decay to two photons at CMS including three different analysis regimes, namely one for the main results and coupling measurements , one for the spin analysis and one which cross checks the background model. The main results are the best-fit quantities of the new boson (mass, signal strength, SM couplings) as well as exclusion limits on its spin and other properties.
List up to 3 experiments that you have participated in. In each case summarize in 2 lines your main contribution (other than your PhD)	
Optionally: List of up to 5 public or internal notes to which you have contributed personally. Indicate the number of authors.	CMS-AN-13-162, and CMS-13-230, "Handling background shape function uncertainty as a nuisance parameter, with reference to Higgs to two photons" Main author (4 authors total) CMS-PAS-HIG-13-016, "Properties of the observed Higgs-like resonance decaying into two photons" Main author and editor (2 authors total) CMS-AN-13-008, "Updated measurements of the Higgs boson at 125 GeV in the two photon decay channel" Contributing author (67 authors total) CMS-AN-12-032, "Use of a non-parametric background model within a multivariate analysis to search for a Higgs boson decaying into two photons in the CMS detector" Main author (9 authors total) CMS AN-11-343, "Residual photon energy corrections and resolution from simulation" Main author (3 authors total)
List of (up to 5) presentations at international Conferences (specify talk or poster) or workshops: conference name, date, title of the talk	Higgs Hunting, Orsary 2013 - "Higgs to two photons at CMS" Invited conference plenary talk LHC Collider Cross Talk, CERN 2013 - "Higgs to two photons at CMS" Invited workshop chalk and talk CMS UK, Oxford 2013 - "Jackknifing the Higgs to gamma gamma analysis" Invited workshop talk CERN Summer School, Arequipa 2013 - "Higgs to two photons at CMS" Poster RAL High Energy Physics Summer School, Oxford 2013 - "Higgs to two photons at CMS" Poster
Statement of Research Interest (max 15 lines)	Please see attached CV.
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