

## Statement for the Election of the Collaboration Board Chair

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LHC operation marks the dawn of a new age of discovery. The LHC is a global phenomenon; the public is captivated and our global collaborations are seen as a model for the world. This is wonderful; and an opportunity for the *entire* field of particle physics. CMS is playing a central role. We are considered to be a star performer by the wider particle physics community. The CMS brand is synonymous with excellence. These accomplishments belong to all of you the present members of CMS, and the many more who made CMS possible.

The separation between Executive Management and the Collaboration Board (CB) is a key feature of CMS. A common vision, and close cooperation exists between the two bodies now and it is essential that it continue. Care must be taken to ensure the respective roles remain clearly delineated and in accord with the constitution.

The Collaboration, through the CB, should continually work to nurture and better integrate *all* the myriad talents of our remarkable collaboration, irrespective of gender or region, in the development of CMS life in all of its richness from scientific policy to management structure and the selection of our officers. As the scale of CMS is unprecedented there is no blue print for success. While we can learn from the past we are charting a new course. Frequently assessing where we are and where we are going, through electronic surveys of the membership, permanently open electronic bulletin boards, a CB Chair open door policy, targeted CB subcommittees, and regular meetings of the CB chair with every CMS institution, are appropriate.

CMS will likely remain a major productive scientific collaboration for at least two decades. We will all be colleagues for the majority of our careers. Given this longevity, it is especially important to continue to develop a nurturing and sustainable collaboration where all can reach their full potential. The future of the collaboration depends on its youngest members. It is critical that CMS provide effective collaboration-scale opportunities to aid the development of young physicists in all aspects of the CMS brand of experimental physics by providing broad opportunities for training in data analysis, software and hardware. The hands on data analysis school that I had the privilege to co-develop in 2009 has now trained over 200 students and with the support of the CMS Spokespersons become the CMS Data Analysis School. This year CMSDAS has been successfully staged at the LPC and Pisa, and soon will be held in Asia. It is timely to develop a CMS Detector and Detector Upgrade School. Like CMSDAS, the school would be primarily hands-on and consist of a mixture of hardware talks and labs, and detector simulation. It would borrow heavily from the excellent EDIT school founded at CERN in 2011. Working closely with the CMS management, it would be possible to mount this school at CERN, the LPC or other major institutions perhaps as early as the end of this year. The school would not only educate our younger colleagues but also facilitate their involvement in the phase 1 and phase 2 upgrades. The school, would also have the potential to become a laboratory where new detector upgrade ideas from not-so- young colleagues could be explored and provide a flourishing foundation for phase 2. The detector is the heart of the Collaboration, our software its soul. By extension it would therefore also be appropriate and timely to develop a CMS Software School that will ensure we have trained the next generation, and that our software continues to be robust, readily maintainable, and meet the demands the detector and physics place upon it. With such schools in place CMS will be better able to develop a reputation among prospective graduate students as the best LHC experiment to join, and among prospective post doc employers as a producer of exceptionally well-trained young scientists.

Maintaining CMSDAS and developing detector and software schools, while critical, is not sufficient. Obtaining excellent post doctoral appointments that provide the appropriate preparation to transition to a permanent position are too few in number. All too often we are seeing excellent young CMS scientists, in which the Collaboration has invested years of training leaving CMS to join other experiments, including ATLAS. The CMS Spokesperson has taken the very positive step of setting up a jobs page on iCMS and has begun meeting on a monthly basis with the young members of CMS. We propose that the Collaboration systematically identify our most promising young emerging leaders and work co-operatively and systematically to create opportunities that will retain them on CMS. Of course programs that work in one region will need to be adapted to work in other regions where different rules and constraints apply. As an example of what is possible: at the LPC in 2010 we began a CMS Fellows Program open to any younger member of CMS irrespective of nationality or institutional affiliation. The program is designed to help build and maintain the strength of CMS by providing research opportunities and salary support for young and mid-career emerging leaders. Prospective Fellows write a proposal outlining a plan to deliver a major contribution to CMS physics or to physics object refinement. Fellows are selected by a committee that includes the CMS Physics Coordinator. The program, although in its infancy, has already

allowed many talented younger scientists to increase their contributions to CMS. CMS Fellows are also doing well in the hunt for faculty jobs, in year one of the program four of the seven junior fellows were in the job market and were frequently short listed for interview and one accepted a CMS assistant professorship. The trend is continuing in 2012, a year in which we have received increased funding for the program, and support 19 Fellows. For the 2013 program, working closely with CMS management, we will target some Fellowships for the development of the CMS Upgrade and expand the involvement of CMS scientists in the selection process and in steering the program. The CMS Fellows program is an example. If we work together with purpose and creativity we can develop further Collaboration-wide opportunities for our young colleagues and the probability of retaining them on CMS and their ability to obtain a faculty or lab scientist position will both increase.

Finally, there is anecdotal evidence that young ATLAS scientists have been more successful than young CMS scientists in obtaining tenure track faculty and lab scientist positions in the last several years. With high priority we need to establish if this is indeed the case, identify the causes and determine what would be the wisest course of action to change the situation.

At the end of 2012, after three glorious years, LHC data taking will cease and we will enter the long shutdown. The Collaboration is beginning to identify who is to remain at CERN, and who will return home. While we need to avoid a standing army at CERN, we cannot have everyone leaving CERN with the risk that not enough scientists return prior to the start of high energy running. The CB can help the Spokesperson develop a multi-year plan.

The phase 1 and phase 2 upgrades are critical to the future success of CMS. Funding is national, while CMS is international. Managing this constraint is challenging. Science funding opportunities exist in the E.U. the U.S. and in other regions explicitly for international scientific collaboration. CMS is already seeking funding through some of these programs but it would benefit from systematically identifying the opportunities and responding to them in an optimal way for the upgrades.

Data Preservation is important, and it is recognized to be so by many of the governments of CMS member states and by many other fields of science. CMS will continue to develop a plan that will lead to excellence in data preservation, while simultaneously benefitting from the funding opportunities it presents. Recognizing that there is a range of opinions on providing access to CMS data and a wide range of options for doing so, the CB working together with CMS management can determine the best ways to proceed.

At this special time for particle physics enhanced investment in outreach would be wise. One of the most effective ways to accomplish this is for CMS members to give public lectures. A commonly cited reason for why there are so few public lectures given is pressure of work. To offset this a professional quality, always up to date, CMS public lecture including slides and supporting material, including the words that go with each slide, could be developed and made available to all members of CMS. Similarly, to make the task of preparing a technical seminar less time-consuming, including seminars on the upgrade, or the discovery of the Higgs, PAGs, POGs and DPGs could produce small sets of high quality slides and full accompanying explanations.

The development of CMSDAS and the CMS Fellows program have given me the opportunity to interact with many members of CMS and to demonstrate the effectiveness of Collaboration-scale programs investing in our young colleagues. Much more needs to be done. Serving as CB Chair would be an opportunity to work with all of you to develop more programs that can help. I am honored to participate in the CB Chair election. If elected I will move to CERN. I will travel widely, visiting all the regions, listening and learning from all of you, and doing everything in my power to help build a more perfect Collaboration.