

## CMS Spokesperson Candidate Statement

**CMS** is one of the most successful scientific endeavours ever undertaken by humankind, which has yielded a cornucopia of physics results from proton-proton and heavy-ion collisions, culminating in the discovery of the Higgs boson, the most important accomplishment in particle physics during the last half-century and resulting in the 2013 Nobel Prize in Physics. We continue to publish significant results at the astonishing rate of 2-3 papers per week, which in no small measure is due to the extraordinary performance of the largest scientific instrument ever built, the LHC. Our collaboration is committed to achieving a comprehensive understanding of physics at the TeV scale through a robust program of precision measurements and searches for new physics that complement those of non-accelerator experiments. **The success of the CMS collaboration is due to our collective commitment to excellence.**

**The central role of a Spokesperson (SP) is to maintain and promote the CMS collaboration's position of scientific leadership** in our field. Together with the Collaboration Board (CB), Project Managers and Coordinators the SP must ensure that CMS continues to provide a world-class, motivating research environment, offering all members and especially our younger members opportunities to excel, while actively promoting diversity in all areas. To succeed, the SP must be able to analyse and understand a wide range of issues, continuously **engaging expertise from across the collaboration** to devise effective solutions with adequate consultative community input and support. Decisions must be taken deliberately, rapidly where needed, often handling multiple issues at once, balancing future and immediate needs, and striving to make the most of the physics opportunities at hand, **while promoting and advancing the younger members of the collaboration to positions of leadership.** The SP should consult regularly with the SP advisors, regional representatives and CBIs, and hold regular meetings with the young scientists of the collaboration. It is vital that the SP team maintain a strong link to the CERN directorate, the SP's counterparts in the other collaborations, the external referees and review committees, and to the funding agencies. The SP team coordinates the management of the experiment, informed by the strategic directions and policies set by the CB, and is responsible for ensuring that adequate resources are available to the collaboration and that adequate opportunities for discussions are provided on the path to decisions. The next few years will be exceedingly challenging. **The SP must try to optimize and balance the efforts in all areas, while promoting creative new ideas.**

**Run 3** is an extremely important milestone on the journey towards the HL-LHC era and should be approached with urgency and enthusiasm. We should not fret about what integrated luminosity may or may not be achieved. Rather we should ask how that run can be used to test innovations while producing **interesting physics results.** It is recognized that there will be challenges in physics analysis for high precision measurements with a detector exposed to increasing levels of radiation, and in maintaining support for operations, while, at the same time, **Phase 2 upgrades** must rapidly proceed towards final designs in order to stay on schedule, with thorough testing at each step to guarantee reliability. This challenge must be met through the collaboration's extensive experience in managing advanced R&D and large-scale construction. The current teams are extraordinary and we cannot afford to let that expertise dissipate even while personnel move on. With commissioning and upgrade activities already well on their way, we have a demanding role for the remainder of LS2. **A synergistic and coordinated plan among the different projects must be optimized to ensure on time convergence towards Run 3 and beyond.**

**Towards Institutional Commitments** We need to continue our move towards Institutional commitments with a coherent set of tasks and responsibilities. This is necessary for promoting stability and sustainability and for capacity building throughout the institutes of the collaboration. Identifying highly visible tasks provides a promising path for recently hired

young faculty and scientists, at new CMS institutes, to establish their leadership credentials at their home institutes. **Strengthening cross-coordination among the different areas and projects with temporary task forces, created as needed and comprising senior and younger members from the collaboration**, can help develop expertise through direct and continuous contact with the coordinators and system managers involved.

**With over 20 years of experience** I have had challenging roles in CMS starting from 1996 when I made pioneering R&D contributions to gaseous micro-pattern detectors. From 2001 onwards, after joining CERN as a staff scientist, I have led and cross-coordinated the validation of Resistive Plate Chambers (RPC) across all LHC experiments, coordinated and supervised the construction, quality control, and installation and commissioning of the CMS forward RPCs. I have spent a considerable amount of time at Point 5 working closely with the Technical Coordination (TC) team starting with work in support of the first Magnet Test and Cosmic Challenge. This gave me an immense exposure to, and a comprehensive view of, CMS and the path forward for commissioning and operations. Keeping the collaboration informed is a difficult but critically important task. It is a task that may require some reflection, from time to time, to determine what modes of communication are the most effective. One may remember, for example, the “Report from P5: CMS Times” that I initiated in order to apprise the collaboration of the work at P5. My disposition as a learner informed my creation of new opportunities for the young scientists in CMS. I am acutely aware of the reality that roughly eighty percent of our doctoral students find job opportunities outside academia and a substantial fraction of CMS postdocs likewise leave the field to deploy their talents elsewhere in our societies. This is one reason I have championed events specifically informed by this reality, such as the career networking event. I intend to continue to promote such events through the various committees within CMS. As Co-Chair of CMS International committee, continue working with the goal of improving engagement and strengthening the support to remote institutions all over the world, particularly in Asia and the Americas, is on the top of my priorities, my work **well recognized by the CERN International Relations sector**.

Since 2009, I conceived and led the development of a new detector technology (GEM), which I brought to and integrated into the CMS Muon System for major physics improvement. I led the R&D, prototyping, and production, resolving many challenges along the way and taking the project from the Technical Design Report (TDR) stage, through LHCC reviews, to the very first endcap that has been installed with commissioning imminent. This project has demonstrated and documented my abilities in bringing together new institutes and colleagues with widely differing capabilities; generating sustained enthusiasm over many, many, years; providing a welcoming environment, which has yielded more than 60 PhDs, and in which 100 FTE from nearly 40 institutions around the world now work. Nearly ten institutions have cloned the pilot detector production laboratory at CERN that I designed and led. **The GEM management team has always had a structure with a midlevel full of young coordinators who are the backbone for the future of the project**. Institutional responsibilities are well-defined and are periodically evaluated and continuously streamlined.

Collective commitment is the principal reason for the continued success of the extraordinary talent pool that is the CMS collaboration. However, **leadership matters because it is the leaders who ultimately set the tone**. The role of the Spokesperson entails binding the collaboration together and resolving inevitable disputes fairly, with the imperative of maintaining the collaboration’s scientific excellence. The Spokesperson must lead, but also serve. I believe I can do both and help CMS meet the challenges of the coming term.



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