MUSE Celebration

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Professeur Guiderdoni, Mesdames, Messieurs, Chers participants, Cher Roland,

C'est un grand plaisir pour moi, tant sur le plan professionnel et personnel, de pouvoir participer aujourd'hui à cette célébration et de dire quelques mots. En effet, ma maîtrise de la langue française est limitée, et je me permets de ce fait de continuer ce discours en Anglais.

Today's event is important for world-astronomy, for science and technology in France, for ESO, for the University of Lyon, for the members and home institutions of the MUSE team, and for Roland Bacon, who leads the entire MUSE effort. That he and I have been good friends for two decades makes it a doubly happy occasion.

When ESO's Very Large Telescope on Paranal in the Atacama Desert was in the early construction stages, it became clear that a new model would be needed to equip the four 8.2-metre telescopes with the planned eleven state-of-the art first generation instruments as ESO did not have the resources to do this in house. This led to the idea to invite teams of scientific and technical institutes in the Member States to build most of the instruments. This resulted in many international collaborations coordinated by ESO. The extra person effort provided by the institutions was compensated by guaranteed observing time on the VLT, so that the team that built the instrument would also be able to do 'its' science while the entire community would have the normal competitive access.

Guy Monnet, who of course has strong roots here in Lyon, was head of instrumentation at ESO for many years, and he had a key role in making all of this work. This approach has contributed significantly to the tremendous success of the Very Large Telescope.

In this same period the Lyon Observatory embarked on a new initiative in optical instrumentation development, initiated by Guy before he left for ESO, and soon led by Roland. The focus was on a new approach to spectroscopy, namely to use a spectrograph to disperse the light into the colours of the rainbow over an extended area leading to a much improved observational accuracy, coverage and efficiency. The Lyon team pioneered a specific technical solution to achieve this so-called integral-field spectroscopy. The prototype TIGRE was deployed at the Canada French Hawaii Telescope on Mauna Kea and followed by OASIS which focused on relatively small fields, but with high spatial resolution achieved with the assistance of adaptive optics. The retirement of TIGRE led to the idea to build a wide-field successor, SAURON, complementary to OASIS. SAURON is now fifteen years old and still operational on the William Herschel Telescope on La Palma. It was built for the specific scientific goal to understand the motions and physical properties of stars and gas in nearby galaxies,

and this was done successfully by a small international team centred on Lyon, Leiden and Oxford, with Roland one of the leaders.

In this same period other approaches for integral-field spectroscopy were being pursued elsewhere in Europe, with similarly interesting scientific results. For some mysterious reason many of our American colleagues still seem not to have realized that they missed the boat on a truly important technological development in astronomy.

As soon as SAURON provided its first results, we started thinking about the next step. I remember particularly well a lunch with Roland at Pizza Pan here in Saint-Genis-Laval where we 'mused' about a monster version of SAURON.

Luckily, soon after this ESO put out a call for ideas for second generation instrumentation, and it was clear that this provided a golden opportunity to take the next step in what was now becoming a programme. This led to the formation of a new and much larger team. A proposal was written and ESO selected MUSE as one of the four second generation instruments and will provide an unprecedented view of the deep Universe, the early stages of galaxy formation and nearby galaxies. The team will receive 225 nights of guaranteed observing time.

Considering the 8.2m mirrors of the VLT, the MUSE field of view, the high spatial resolution provided by adaptive optics assisted by four laser guide stars, a very large simultaneous spectral range and very high throughput, MUSE is two generations beyond OASIS and SAURON. It will be a tremendously powerful part of the arsenal of VLT instruments, and will in fact dwarf anything else on the planet. This is a great achievement for the team which includes astronomers, engineers and technicians in Göttingen, Leiden, Lyon, Potsdam, Toulouse and Zürich, and significant support by ESO. It would not have been possible without the strong support of the Ministry of Research, the CNRS and the local authorities, and reflects very well on the support of science in France and in Europe.

While the earlier assumption was that any worthy successor to the SAURON instrument could only be called Morgoth (for those versed in Tolkien's Universe), I am quite pleased with the name MUSE. Astronomy is the only science that is blessed by having its own Muse Urania, and I am convinced that she will do well at the Very Large Telescope on Paranal. First light is planned for next February. It would clearly be an excellent time for Madame Fioraso to visit Paranal (no pressure Roland).

The MUSE effort is an example of a key strength of the ESO programme, which of course also includes ALMA, the largest radio telescope in the world. In the same way ESO expects to continue to offer superb facilities as we together embark on the construction of the E-ELT, the world's biggest eye on the sky with a 39-metre main mirror, which should see first light in ten years time. Thank you very much.