Report on a Micro-Workshop held at ESO/Vitacura on January 28, 2004

Optical Interferometry Brings New Frontiers in Astrophysics

Christian Hummel and Danielle Alloin

ESO's VLTI is the first interferometer offered to the community of astronomers world-wide in service mode. Taking advantage of the presence of distinguished visiting interferometrists and members of the VLTI team at ESO Vitacura, a one-day micro-workshop was organized to introduce more ESO and Chilean astronomers and students to this observing mode and to make them consider the role the VLTI could play in their research. After introductory talks on interferometry, data reduction, and calibration, some outstanding recent results from VLTI/VINCI and other interferometers were presented, demonstrating impressively how optical interferometry has already contributed to advances in some fields of astrophysics, e.g. in testing stellar evolution theory.

Research possible now or in the near future with existing or soon to be installed instruments on VLTI was highlighted in the field of stellar physics, where the possibilities are numerous, and in the field of AGN research.

The instruments and observation planning tools were described from the point of view of the user, conveying the feeling that those astronomers not specialized in optical interferometry are indeed encouraged to apply for observations with the VLTI.

Finally, the second generation of VLTI instruments was also presented, as well as some new concepts which will make interferometry in the optical and IR even more powerful.

The attendees, between 40 and 50, were astronomers and students from ESO, PUC, UChile, UTarapaca, as well as engineers, technicians, and telescope operators from Paranal.

It was a great pleasure to share the enthusiasm, inspiration, and lively discussion which were present throughout the micro-workshop. We hope this will bring more and more users to the interferometric observing mode and its immense promises.

Many thanks to the speakers, V. Coudé du Foresto, E. Galliano, C. Hummel, P. Kervella, S. Morel, A. Quirrenbach, M. Schoeller, and M. Vannier.

Fellows at ESO

Nicolas Cretton

I came to ESO Garching at the end of 2001, after a first post-doc at the Max-Planck Institute in Heidelberg. I got my physics diploma from Geneva University (Switzerland) before I moved to Leiden (The Netherlands) to work on a PhD project, under the supervision of Profs. Tim de Zeeuw and H.-W. Rix.

My research focuses on the dynamics of galaxies and their dark matter content: central supermassive black holes and large-scale dark halos. Studying unseen components of galaxies is intimately linked to the (dynamical) modelling one applies to the (kinematical) observations. Indeed, an over-simplified model could give the wrong answer regarding the presence of, say, black holes: it would only reveal its own limitations. In that spirit, I have implemented and extended the "orbit" method to model galaxies, originally invented by Martin Schwarzschild. This method makes no *a priori* assumptions about the dynamical structure of the galaxies and is therefore well adapted to the question of dark matter.

Before coming to ESO, my work was almost purely theoretical, although I was modelling real galaxies and not just studying "academic" questions. The pertinence of my models also depends on the quality of the data (spatial and spectral resolution, S/N, extension, etc) so it was natural for me to try to get more expertise in the observational field. In this way, I was hoping to 1) better understand the observations and what they really mean (e.g., can we trust this error bar?) and 2) write better observing time proposals and 3) improve my general astronomy experience to increase my chances of getting a permanent position. Therefore I applied to ESO and fortunately got the job! At ESO, I got involved in the FLAMES group, led by Luca Pasquini. FLAMES is a multi-fibre spectrograph for the VLT which is revolutionizing the measurement of discrete stellar velocities, thanks to its multiplex capabilities, its spectral resolution and the collecting power of the VLT. In addition, it has two integral-field modes, where integrated spectra can be obtained over all the field of view simultaneously. I really enjoyed the atmosphere in Luca's group, mostly due to the personalities of its members and the success of the instrument!

I am now in my last (third) year as an ESO fellow and I can say that I have really enjoyed my time here: ESO is a great place to do and discuss science, not only because of all the in-house expertise, but also because it is located right next to two Max Planck Institutes where astronomy research is also done. At ESO, one really has the feeling of being at the right place, where important things happen, where the latest news is discussed and where tons of talks are given each week and plenty of visitors pass by. Furthermore, Munich is a very nice city, with plenty of nature nearby (lakes, forests, hiking and skiing in the Alps).

Emanuele Daddi

Astronomy entered my life literally by accident. At the age of 15 I broke a leg playing football, and never-ending queues waiting in an Italian public hospital forced me to do plenty of reading. With great excitment I realized from