

News from Santiago

With the ever-growing number of astronomers in Chile, the ESO Topical Meetings in Santiago provide an important forum for the community to meet, exchange ideas and discuss recent research.

The series started with three successive meetings in October/November 1999 ("The Distant Universe", "Physics of Galaxies", "From Stars to Planets"), then continued in December 2000 with a Topical Meeting oriented towards telescopes/instruments ("New Facilities for Astronomy in Chile").

In 2001, we have complemented the series with two Topical Meetings recently held at ESO/Santiago. Below are short summaries of these lively and fruitful scientific meetings. Names in parentheses are speakers at the Workshops. Acronyms are written out at the end. D. Alloin

ESO Topical Meeting: "Astrophysical Niches for High Resolution Spectroscopy"

*ESO/Santiago, 2001 October 2–3
S. Ellison*

This Topical Meeting was held in Vitacura on October 2–3. The technique of high-resolution spectroscopy is exploited in many areas of astronomy, as was reflected by the breadth of scientific talks given over the two days and the attendance of astronomers and students from universities in Santiago and Concepción as well as several visitors from Europe and other Latin American countries.

One of the most exciting and widely publicised uses of high-resolution spectrographs in recent years has focussed on their exquisite radial velocity accuracy necessary for detecting extra-solar planets.

D. Queloz presented a progress report of the on-going planet search project with CORALIE and reviewed some of the important conclusions to come out of this programme. The distribution of planet masses, which exhibits a sharp increase down to around 1 Jupiter mass before dropping sharply due to incompleteness, highlighted the motivation for future instrumentation such as HARPS, which will provide the next important step in radial velocities by routinely providing 1 m/s accuracy (F. Pepe).

Another exciting prospect is using the transit method to detect extra-solar planets. G. Mallen-Ornelas presented some recent radial velocity follow-up measurements from UVES of the first extra-solar planet candidates to be detected via the transit method, an important discovery and a complement to radial velocity techniques.

Stellar spectroscopy naturally had a significant presence at the Topical Meeting, addressing many wide-ranging issues. Important new results have surfaced in the field of metal-poor stars, as reviewed by E. Jehin. Although

many puzzles still remain (e.g. the oxygen abundance in very metal-poor stars and the issue of deep mixing), new avenues are continually opening, such as the possibility of using radioactive isotopes for age-dating. Chemical profiling was a recurrent theme of this meeting and talks by D. Minniti, J. Arenas and D. Geisler highlighted this technique in three very different populations: the Galactic bulge, the metal-poor halo and Sculptor dwarf spheroidal.

High resolution is essential for the detailed analysis of stellar magnetic fields due to the small scale of line splitting, as discussed by G. Mathys and S. Bagnulo.

High-resolution spectroscopy has also had an important impact on cosmological fields. B. Leibundgut reviewed an ESO large programme aiming at characterising the elusive SNIa progenitor population, whose nature remains unknown despite its key role as a standard candle.

The study of high-redshift quasars proves to be interesting not only for investigation of the AGN and its environment (P. Hall), but also as a tool for probing intervening matter such as the intergalactic medium and distant galaxies (S. Lopez and S. Ellison). Quasar absorption lines remain one of the best diagnostics of the high-redshift Universe, allowing us to determine detailed chemical profiles, probe primordial abundances and even measure the temperature of the CMB.

European and Chilean astronomers now have an exciting suite of spectroscopic capability available to them. In addition to the most recent addition of UVES to the ESO arsenal, the science presented at this meeting utilised a host of instrumentation including FEROS (the most over-subscribed of all ESO instruments), CORALIE and the VLC (on the 3.6-m). Instruments such as EMMI, which are not dedicated high-resolution facilities also offer an important contribution, as demonstrated in talks on cataclysmic

variables (E. Mason and R. Menickent).

Of course, high-resolution spectroscopy is not confined to the Optical and several speakers discussed results in the IR and sub-mm regime to probe the environments of AGN (E. Galliano) and to investigate the properties of star-forming regions (P. Cox).

With new instruments on the horizon, such as HARPS, FLAMES and CRIRES, the capabilities and possibilities for the future are very exciting and research in this domain will certainly continue to blossom.

ESO Topical Meeting: "Brown Dwarfs and Planets"

*ESO/Santiago, 2001 October 16
M. Sterzik*

On October 16, the second in the series of the 2001 Topical Meetings at ESO/Vitacura was about "Brown Dwarfs and Planets". More than 30 participants, the majority being researchers and students based in Chile, discussed the current status and future prospects in this rapidly growing field, a field that was actually pioneered with the discovery of the first free-floating brown dwarf, Kelu-1, in 1997 by the Chilean astronomer M.T. Ruiz. The topic was introduced by a review on the theories of star and planet formation, in the perspective of planet searches (G. Wuechlerl).

Then, coming to the question of discoveries, the whole variety of observational methods employed in brown dwarf and planet search programmes was discussed.

Precise radial velocity Doppler measurements are currently the most successful method in discovering planetary mass companions (e.g. with the spectrographs CES, UVES, CORALIE and in the future HARPS) as was discussed by M. Kuerster.

But also direct imaging methods are now promising, ranging from Deep NIR