# Preface

In the last decade we have witnessed impressive advancements in the accuracy of Doppler shift measurements in astronomy, as well as of high-precision spectroscopy in general. Even if the main (and most recognized) driver for this development is the search for exo-planets, extremely interesting applications include the analysis of QSO absorption lines to determine the variability of physical constants and the analysis of the isotopic ratio of interesting species, such as $^6$Li/$^7$Li in metal poor stars or D/H in QSO absorption lines. Another field in strong expansion is the determination of stellar oscillations through radial velocity measurements, a technique that is providing interesting results, sometimes in apparent contradiction with photometric determinations.

The use of high precision/resolution spectroscopy is intimately connected to the ability to collect a large number of photons. Indeed, the random measurement uncertainty depends on the inverse of the signal-to-noise ratio. Therefore, high accuracy usually requires a large photon collecting capability. Not only do the scientific domains using this technique benefit tremendously from the use of 8-meter class telescopes, but they will also fully exploit the tremendous gain provided by future Extremely Large Telescopes (ELTs), as clearly shown by the preliminary studies of high resolution spectrographs for ELTs. And even if most applications so far have been at optical wavelengths, IR high-resolution spectroscopy should soon approach the same accuracy regime.

With this motivation in mind, we proposed to gather together scientists to discuss topics related to various aspects of high precision spectroscopy.

In a collaboration between ESO, the Center for Astronomy and Astrophysics of the University of Lisbon (CAAUL), and the University of Aveiro, the conference "Precision Spectroscopy in Astrophysics" was thus organized. During the week from 11 to 15 September 2006, about 100 scientists gathered in the pleasant town of Aveiro, near the northern Portuguese Atlantic coast. Between excellent talks and posters, Portuguese cuisine, and some boat-trips and barbecues, this conference gave the opportunity to discuss the different topics mentioned above in a relaxed but fruitful atmosphere.

For this great success we would like to deeply thank all the participants who made it possible. This conference was done for you and by you. Some persons and institutions were, however, of fundamental importance in organizing

the process. First of all, the SOC members, whose suggestions produced the final conference program. The LOC made a wonderful work, and we would like to thank in particular Susana Fernandes, Eugenia Carvalho, and Britt Sjöberg, for their invaluable dedication and help, also in the most complicated moments.

Finally, we would like to thank the three institutions that made this event possible, ESO, the University of Lisbon, and in particular the University of Aveiro for having provided all the necessary infrastructures for the conference venue. These proceedings could not see the light without the patient and careful work of Pam Bristow.

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*Nuno C. Santos*
*Luca Pasquini*
*Alexandre C.M. Correia*
*Martino Romaniello*

Local Organizing Committee:

Nuno C. Santos (co-chair, CAAUL), Alexandre C.M. Correia (co-chair, University of Aveiro), Xavier Bonfils (CAAUL), Sergio Sousa (CAAUL/CAUP), Susana Fernandes (University of Aveiro), Eugénia Carvalho (CAAUL), Britt Sjöberg (ESO)

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