FOREWORD

The purpose of "tridimensional" spectroscopy (also called spectro-imaging) is to obtain spectral information (the λ dimension) on spatially extended objects (2 space dimensions), such as planets, comets, extended nebulae, galaxies, or fields densely populated with many stellar objects that are simultaneously observed. Extensions of this concept are 2D space reconstructions of point sources by means of Doppler imaging, multispectral speckle interferometry, differential interferometry, etc...

Various techniques have been developed to overcome the basic constraints of getting tridimensional information (the so-called "data cube") with finite two-dimension detectors. Scanning interferometers and Integral Field Spectrographs now provide complementary spatio-spectral sampling performances in the visible range while the Fourier Transform Spectro-Imager, first near-infrared 3D instrument, is a superb tool for the study of emission lines in K band.

A new era now opens for astrophysics with the upcoming 8-10m telescopes. On these instruments which will offer adaptive optics, spectro-imaging devices will allow a full preservation of the imaging qualities of the telescopes and a very rational use of telescope time.

These advances in optical instrument design coupled with state-of-the-art digital detectors have led to major progress in various fields of astrophysics. From Solar System objects to the most remote optically visible radiogalaxies, 3D spectroscopy has allowed to gather unprecedented high-quality data which often has led to considerable breakthroughs in the physical understanding of astronomical objects.

The International Astronomical Union Colloquium 149 was held in 1994, March, in Marseille, the antique city of the famous Greek astronomer Pytheas. At the end of the nineteenth century, Charles Fabry and Alfred Perot invented the multiwave interferometric etalon at Marseille. Some years later, they installed it on Foucault's 80 cm refelector, in the garden of Marseille Observatory, for its first astrophysical application on the emission lines of the Orion Nebula. This ancestor has had a prolific descendance, widely used at numerous large observatories throughout the world: the scanning Fabry-Perot spectrometer has been the first true 3D spectro-imager, remains very popular, and find ever new applications.

The Organizing Committee was particularly happy to invite this Colloquium in Marseille exactly one century after the seminal discoveries made by Charles Fabry and Alfred Perot. In this occasion, we were also happy to gather his pupils, friends and colleagues around Professor Georges Courtès to celebrate a carreer devoted to the development of the astronomical applications of interferometry.

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Finally, it is a pleasure to thank all the participants, for their efforts in giving to this meeting a high scientific content in the most cheerful atmosphere.

Georges Comte
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