

PREFACE

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This book enlightens its own title “What can the highest angular resolution bring to stellar astrophysics?”, a question that was addressed in September 2013 by lectures and tutorials offered to PhD students during the VLTI school organized in the pleasant little town of Barcelonnette in the french “Alpes de Haute Provence”. Most of the organizers are working at Lagrange laboratory at Observatoire de la Côte d’Azur (OCA): A. Chiavassa, L. Bigot, F. Millour, A. Meilland, Ph. Stee, and the remarkable astrophysicist O. Chesneau, who left us prematurely on May 17th, 2014.

O. Chesneau had already orchestrated the 2010 April version of the VLTI school on the Porquerolles island, close to the town of Toulon (French riviera), but was quite unlucky in his endeavor. A few days before the start of the school, the Icelandic Eyjafjöll volcano blasted in an unprecedented eruption, almost stopping all the European airplane traffic. His efforts seemed to be completely compromised, but, with his extraordinary energy and motivation, he succeeded to maintain the school by contacting personally each participant, different companies and structures, to organize the arrival to Porquerolles of those participants who were still motivated-enough to attend the school. In 2013, Olivier put again his energy and effort to motivate younger scientists from OCA to propose and organize a new VLTI school, almost as a revenge over 2010’s unlucky circumstances.

The outcome of the school is here under the reader’s eyes: as extraordinary as it can be, reflecting Olivier’s dedicated life to astrophysics, high angular resolution observations, and long baseline optical interferometry. This book fulfills its goal: from the historical background by Prof. P. Léna, through the principles of aperture synthesis in optics, different technical and observational aspects related to stellar astrophysics with unravelled results, to the visionary concepts of Prof. A. Labeyrie. In the spirit of Olivier Chesneau: yes the highest angular resolution has already started and will continue to revolutionize the field of stellar and extragalactic astrophysics, and most probably conduct to the direct detection and characterization of exo-planetary systems, and the search of life in other worlds.

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