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Autore	Bloemen Steven
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Note generali	"Doctoral thesis accepted by the KU Leuven, Belgium."
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Spin-resolved spectroscopy of the intermediate polar DQ Her -- Spectral variability on the spin period of the white dwarf in V455 And -- Kepler observations of the beaming binary KPD1946+4340 -- Doppler beaming and Rømer delay in the Kepler data of KOI-74 -- A new grid of evolutionary sdB models and their pulsational properties -- MAIA: the Mercator Advanced Imager for Asteroseismology -- Conclusions and future prospects.
Sommario/riassunto	This book, which is a reworked and updated version of Steven Bloemen's original PhD thesis, reports on several high-precision studies of compact variable stars. Its strength lies in the large variety of observational, theoretical and instrumentation techniques that are presented and used and paves the way towards new and detailed asteroseismic applications of single and binary subdwarf stars. Close binary stars are studied using high cadence spectroscopic datasets collected with state of the art electron multiplying CCDs and analysed using Doppler tomography visualization techniques. The work touches upon instrumentation, presenting the calibration of a new fast, multi-colour camera installed at the Mercator Telescope on La Palma. The

thesis also includes theoretical work on the computation of the temperature range in which stellar oscillations can be driven in subdwarf B-stars. Finally, the highlight of the thesis is the measurement of velocities of stars using only photometric data from NASA's Kepler satellite. Doppler beaming causes stars to appear slightly brighter when they move towards us in their orbits, and this subtle effect can be seen in Kepler's brightness measurements. The thesis presents the first validation of such velocity measurements using independent spectroscopic measurements. Since the detection and validation of this Doppler beaming effect, it has been used in tens of studies to detect and characterize binary star systems, which are key calibrators in stellar astronomy.

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