Downloaded from UvA-DARE, the institutional repository of the University of Amsterdam (UvA)
http://dare.uva.nl/document/103778

File ID	103778
Filename	Contents

SOURCE (OR PART OF THE FOLLOWING SOURCE):

Type	Dissertation
Title	Optical observations of close binary systems with a compact component
Author	T. Augusteijn
Faculty	Faculty of Science
Year	1994
Pages	159

FULL BIBLIOGRAPHIC DETAILS:
http://dare.uva.nl/record/5377

Copyright

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use.

UvA-DARE is a service provided by the library of the University of Amsterdam (http://dare.uva.nl)

Contents

1 Introduction and summary **5**
1.1 Close binaries containing a compact object 6
1.1.1 Orbital period distribution 6
1.1.2 Mass transfer 7
1.1.3 Angular-momentum losses 8
1.1.4 The period gap 9
1.1.5 The minimum period 10
1.2 Low-mass X-ray binaries 10
1.2.1 Classification 11
1.2.2 Formation and evolution 12
1.2.3 Summary of results 13
1.3 Cataclysmic variables 14
1.3.1 Classification 14
1.3.2 Formation and evolution 15
1.3.3 Summary of results 16

I Low-mass X-ray binaries **21**

2 The optical counterpart of the Z source GX 349+2 **23**
2.1 Introduction 23
2.2 Observations and Analysis 23
2.3 Discussion 24
2.4 Conclusion 26

3 Coordinated X-ray and Optical observations of Sco X-1 **29**
3.1 Introduction 29
3.2 Observations 30
3.3 Results 31
3.4 Historical Walraven data 33
3.5 Conclusions 35

4 Phase-resolved spectroscopy of the atoll sources 1636–536/V801 Ara and 1735–44/V926 Sco **39**
4.1 Introduction 39
4.2 Photometry 40
4.2.1 1636–536/V801 Ara 40
4.2.2 1735–444/V926 Sco 42
4.3 Spectroscopy 43
4.3.1 Average spectrum 43

4.3.2 Radial-velocity variations 44
4.4 Discussion 48
4.4.1 Emission from the bulge 48
4.4.2 A comparison of the two sources 49

II Cataclysmic Variables **53**

5 Spin-up of the white dwarf in the intermediate polar BG CMi/3A0729+103 **55**
5.1 Introduction 55
5.2 Observations and Reduction 56
5.3 The White Dwarf Spin Ephemeris 57
5.3.1 Deriving the ephemeris 57
5.3.2 Comparison with previous work 58
5.4 The Orbital Ephemeris 61
5.5 Discussion 62
5.5.1 Accretion models 63
5.5.2 Comparison with the observed values of $\dot{P}$ and μ 64
5.6 Conclusions 66

6 Periodicities in the optical brightness variations of the intermediate polar TV Columbae **69**
6.1 Introduction 69
6.2 Observations and reduction 71
6.3 Results 71
6.3.1 The orbital period 71
6.3.2 The 5.2 hr photometric period 74
6.3.3 The 4 day photometric period 79
6.4 The 1911 sec X-ray period 80
6.5 Discussion 82
6.5.1 Long term brightness changes 82
6.5.2 Variations at the 4 day period 83
6.5.3 The outbursts 87
6.6 Summary 88

7 Time resolved spectroscopy of the dwarf nova VY Aquarii in superoutburst and quiescence **91**
7.1 Introduction 91
7.2 Observations 92
7.3 The outburst spectra 92
7.3.1 Brightness variations 92
7.3.2 Radial velocity variations from Gaussian fits 95
7.3.3 Radial velocity variations from cross correlations 95
7.3.4 Variations of the system velocity 97
7.3.5 The emission component in the broad absorption lines 98
7.4 The quiescence spectra 98
7.4.1 Absorption components 98
7.4.2 Emission lines 99
7.5 The mass ratio and inclination 104
7.6 Discussion 108

8 A 59^m photometric period in the dwarf nova V485 Cen **111**
8.1 Introduction 111
8.2 Observations and Analysis 111
8.2.1 Photometry 111
8.2.2 Spectroscopy 114
8.3 Discussion 115
8.3.1 A 1 hour rotation period of the white dwarf? 115
8.3.2 A 1 hour orbital period? 116

9 V485 Centauri: a dwarf nova with a 59^m orbital period **119**
9.1 Introduction 119
9.2 Photometry 120
9.3 Spectroscopy 123
9.3.1 Observations and data reduction 123
9.3.2 Radial-velocity variations 124
9.3.3 The spectral distribution 130
9.4 System parameters 132
9.5 Discussion 133
9.5.1 Evolutionary considerations 133
9.5.2 The mass transfer rate 134
9.5.3 The secondary 135

10 Outline of a comparative study of disk and halo cataclysmic variables **139**
10.1 Introduction 139
10.2 Halo and disk CVs 140
10.3 Discussion of the selection criteria 140
10.4 Our sample 151
10.5 High Galactic Latitude CVs revisited 151
10.6 Large-amplitude dwarf novae 153

Samenvatting **155**

Dankwoord **159**