TITLE OF THE THESIS

by

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&

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Abstract

This thesis vastly improved the knowledge of humanity, while revolutionising several fields in the meantime.

Dedication

To Alejandro Vigna-Gómez and James William Makepeace Barrett III.

Acknowledgements

"Cheesy quote."

Funding for my studies was provided by the University of Birmingham.

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Chapter 1

Introduction

For a circular orbit, we can equate the centripetal force $F_{\mathrm{c,i}} = m_i r_i \dot{\theta}^2$ to the gravitational force $F_{\mathrm{g}} = G m_1 m_2 / r^2$, and solve for $\dot{\theta}^2$ in order to derive Kepler's Third Law in the form

$$\dot{\theta}^2 = \frac{GM}{r^3}. \tag{1.1}$$

Equation 1.1 is Kepler's Third Law.

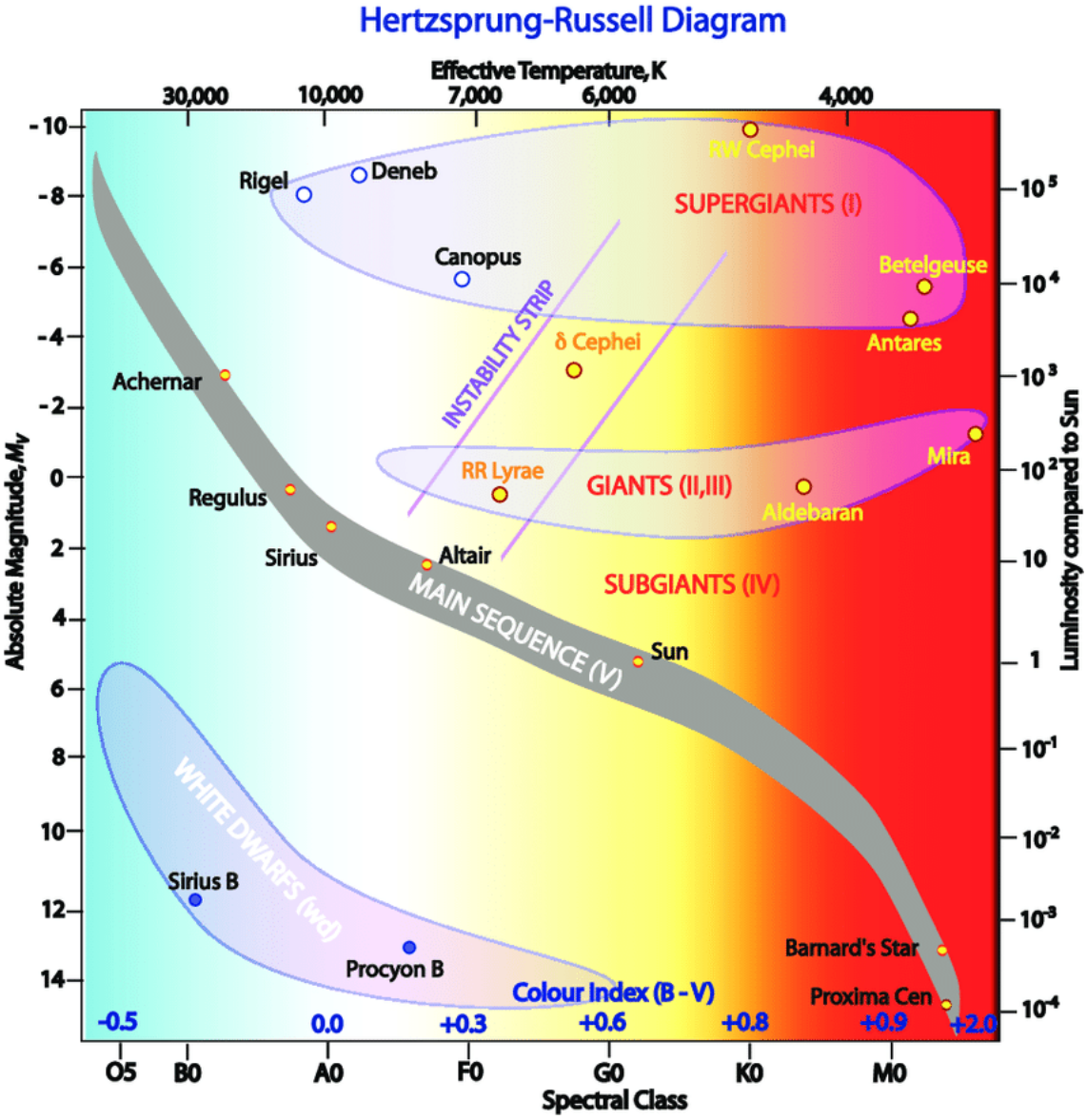

Figure 1.1: **HR!** diagram as shown in figure 1 of Althaus et al. [1].

Chapter 2

Paper I

2.1 Introduction

Section. Introduction of the topic of interest.

2.1.1 Population Synthesis

Subsection.

Rapid Population Synthesis

Subsubsection.

Table 2.1: "Measured parameters of the Galactic **DNS!**s used as a diagnosis in this study. ... References: [a]Martinez et al. [2]." Table extract as presented in Vigna-Gómez et al. 3

Pulsar	P [days]	e	$M_{\rm plsr}$ [$M_\odot$]	$M_{\rm cmpn}$ [$M_\odot$]	Ref
J0453 + 1559	4.072	0.113	1.559	1.174	a

Chapter 3

Conclusions

In this work we have unified physics.

Appendix A

First Appendix

Things that didn't make it to the main text.

Bibliography

[1] L. G. Althaus, A. H. Córsico, J. Isern, and E. García-Berro. Evolutionary and pulsational properties of white dwarf stars. , 18(4):471–566, Oct 2010. doi: 10.1007/s00159-010-0033-1.

[2] J. G. Martinez, K. Stovall, P. C. C. Freire, J. S. Deneva, F. A. Jenet, M. A. McLaughlin, M. Bagchi, S. D. Bates, and A. Ridolfi. Pulsar J0453+1559: A Double Neutron Star System with a Large Mass Asymmetry. , 812:143, Oct. 2015. doi: 10.1088/0004-637X/812/2/143.

[3] A. Vigna-Gómez, C. J. Neijssel, S. Stevenson, J. W. Barrett, K. Belczynski, S. Justham, S. E. de Mink, B. Müller, P. Podsiadlowski, M. Renzo, D. Szécsi, and I. Mandel. On the formation history of Galactic double neutron stars. , 481: 4009–4029, Dec. 2018. doi: 10.1093/mnras/sty2463.