



## Preface

The development of the spectroscope has contributed more to the science of astronomy than any other telescope accessory. It has been said that 75% of all astronomical discoveries have been made with the spectroscope. If you've just bought, or are thinking of buying, one of the popular filter-sized transmission gratings, then this is the book for you.

The popularity of these gratings as a "first spectroscope" has been growing over the past few years, and these simple devices provide a good entry point for budding amateurs interested in astronomical spectroscopy. They are ideally suited to low resolution stellar spectral imaging.

The basic challenge facing the novice is where to start. What other equipment will you need? How do you process the CCD image? How do you analyze your first spectrum? These questions and more are addressed in this book. It provides up to date information on filter gratings and processing methods available to the amateur, and more importantly, the "how to...".

This book has been written specifically for first time users and keeps the mathematics to a minimum. Where some mathematics is necessary, a worked example or look-up table is provided. It should be possible to image your first spectra on your first night.

The low resolution and lack of an entrance slit limit the type of spectroscopy that can be done, but this should not be seen as a negative. By using the telescopes, mountings and CCD cameras currently available to the amateur, this book will show how, with the addition of a simple transmission grating, we can observe and record spectra that reveal the nature of the stars. Many amateurs have successfully obtained spectra showing the temperature, age and chemical "fingerprints" of the stars as well as recording the elements in bright nebulae and the redshift of fast receding quasars! This is the beginning of a journey into the unknown realms of amateur astronomy.

You should be excited to be among the few who will be able to record the wonders of the universe for themselves and see what stars are really made of.

As you practice and gain experience you may want to increase the resolution of your spectroscope, contribute to the ever-growing list of amateur and pro-am projects, or even construct your own spectroscope. A more complete overview of the theory, use and design of advanced amateur spectroscopes is covered in depth in the companion volume to this one, *Astronomical Spectroscopy for Amateurs*.

This is a new challenging field for amateurs. With even the most basic of equipment your activities can be interesting, thought provoking and most of all fun. Enjoy!

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<http://www.springer.com/978-1-4614-1396-7>

Grating Spectroscopes and How to Use Them

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2012, XVII, 167 p. 110 illus., 87 illus. in color., Softcover

ISBN: 978-1-4614-1396-7