The Rajkumar textbook is a compilation of various topics in the area of atomic and molecular spectra. These are based on his lectures, notes, and book chapters. This book has been published by Elsevier Ltd for the American Institute of Physics. This book has extensively gone through various peer-review processes to ensure its quality. The intention is to give an overview about how this textbook is useful for different level of chemistry students as well as researchers in this field who are interested in learning about the topic or working with these concepts. Hence, this book does not have any emphasis one on the other. There are multiple aspects of Atomic and Molecular spectra in this book, which are described below. An overview about the basics of atomic and molecular spectroscopy is given in this section. Different types of spectroscopic graphs are also explained here. Each type of graph will be mentioned where it can be found in the text (section 6). New concepts related to uncertainty analysis are introduced through this section. The types of methods used to calculate uncertainties like Monte Carlo methods, computation by finite difference method (FDM) is shown here with good examples. A detailed explanation about these concepts will also be provided later in paper 1 (chapter 2). The basics of statistical thermodynamics (and quantum mechanics) are shown in the text. The examples used here are simple and helpful for the reader to understand these concepts easily. They are also helpful for solving problems related to spectroscopy data analysis. The major part of the book is about spectroscopy which covers different aspects like absorption, emission (Raman), electric dipole, magnetic quadrupole, transition moments, polarizability etc. This part is mainly about experimentally observed spectra which have been collected from literature and redistributed in this book with statistical uncertainties related to these values. The student who is interested in data analysis can refer this section for more theoretical details about the topic covered here. The final section is about history of spectroscopy. The previous spectroscopists are described here. Their works are described with their background information, which gives the reader an idea about how this whole field has developed. A brief summary can be described as that people, who have contributed in this field is briefly mentioned in the book with their contributions. This book has been developed after considering all these aspects of spectroscopy. These are provided to help the students easily understand these topics which are quite difficult to learn from one go, especially for students who are learning this topic for the first time during their undergraduate study. The book covers many different topics and helps the students learn about them in detail and understand their relationships with each other. The best thing about this book is that it is provided with a CD which has all the spectroscopy data used for this book. This allows the students to learn Spectral Analysis without depending on paper books and also help them to easily perform statistical analysis to get an insight into various aspects of spectroscopy. This book is not meant for people who are learning basic concept of spectrum like absorption and emission. It contains lot of detail based on experimental observations.

668eeb4e9f3266