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# Honoring Charlotte Moore Sitterly: Astronomical Spectroscopy in the 21st Century

*Edited by*

David R. Soderblom  
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HONORING CHARLOTTE MOORE SITTERLY:  
ASTRONOMICAL SPECTROSCOPY IN THE 21ST CENTURY

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*COVER ILLUSTRATION:*

Charlotte Moore-Sitterly, 1945–1968, was an expert in the compilation of atomic spectra. She produced three volumes of atomic energy levels representing a synthesis of the data derived from studies of atomic spectra in the first half of the 20th century.

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ASTRONOMICAL  
SPECTROSCOPY  
IN THE 21ST CENTURY**

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# Table of Contents

Preface . . . . .	vii
Editors . . . . .	viii
Participants . . . . .	ix

## Chapter I: Plenary Talks

Charlotte Emma Moore Sitterly: She “turned chaos into order” . . . . .	3
<i>David H. DeVorkin</i>	
Legacy of Charlotte Moore Sitterly in the Internet Age . . . . .	12
<i>Alexander Kramida</i>	

## Chapter II: Databases and Community Activities

Laboratory Astrophysics Data Working Group IAU 2022 GA session . . . . .	43
<i>M.L. Dubernet, G.B. Berriman, C. Boersma, C. Jäger, M. Rengel, W. R. M. Rocha, F. Salama and C.M. Zwölf</i>	
Laboratory Astrophysics Activities IAU Commission B5 2022 GA . . . . .	49
<i>P. S. Barklem, B. Barbuy, M.L. Dubernet, D. Ryu, F. Salama, P.K. Tan and N. Watanabe</i>	
The Importance of Producing and Characterizing Laboratory Analogs of (Exo)Planetary Atmospheric Aerosols . . . . .	54
<i>Ella Sciamma-O’Brien, Sarah M. Hörst, Ted L. Roush and Farid Salama</i>	
SPECFY - an important tool of the Leiden Ice Database for Astrochemistry in the era of the James Webb Space Telescope . . . . .	67
<i>W. R. M. Rocha, M. G. Rachid, B. Olsthoorn, E. F. van Dishoeck, M. K. McClure, K. Slavicinska and H. Linnartz</i>	
Atomic and Molecular Databases Open Science for a sustainable world . . . . .	72
<i>M.L. Dubernet, G.B. Berriman, P. Barklem, K. Choi, A. Foster, I. Gordon, C. Hill, J. Kim, D.H. Kwon, H. Linnartz, Yu. Ralchenko, F. Salama, H. Shmagun, P. Schilke, D. Seo, J. Shim, S. Shin, M.-Y. Song, J. Tennyson and C. Vastel</i>	

## Chapter III: Astronomical Observations

About the atomic and molecular databases in the planetary community – A contribution in the Laboratory Astrophysics Data WG IAU 2022 GA session . . . . .	87
<i>M. Rengel</i>	

Contribution of small telescopes at the Oukaimden observatory in Morocco to study atmospheric dynamics and shocks waves in variables stars RR Lyr and R Scuti . . . . .	92
<i>A. Benhida, F. L. Sefyani, K. Chafouai, Y. El Jariri, J. Chouqar, Z. Benkhaldoun, K. Kolenberg and S. Sylla</i>	

#### **Chapter IV: Laboratory Measurements**

Analysis of emission line spectra of active galaxies and fine classification for activity types . . . . .	101
<i>A. M. Mickaelian, H. V. Abrahamyan, G. M. Paronyan and G. A. Mikayelyan</i>	
The Next-Generation Laboratory Experiments on Planetary Materials . . . . .	104
<i>Xinting Yu</i>	
Accurate new atomic data for Galactic Surveys . . . . .	111
<i>Maria Teresa Belmonte, Pratysuh R. Sen Sarma and Santiago Mar</i>	
Collisional rate coefficients for astrophysics . . . . .	123
<i>Alexandre Faure</i>	
Author Index . . . . .	133

## Preface

This volume presents written contributions from IAU Symposium 371, “Honoring Charlotte Moore Sitterly: Astronomical spectroscopy in the 21<sup>st</sup> century.”

Charlotte Moore Sitterly had a long and remarkable career that fundamentally advanced spectroscopy in general, and astronomical spectroscopy in particular. Key to these advances were her efforts to make atomic data findable and accessible through her multiplet tables and compilations of atomic energy levels, making her a pioneer in the FAIR (findable, accessible, interoperable, and reusable) usage of scientific data - a principal that was emphasized repeatedly throughout the symposium. Her work on compilations carries on in the NIST atomic spectroscopy databases that provide a vital source of atomic data for astronomers. For one of us (DS), her compendium “A Multiplet Table of Astrophysical Interest” provided more practical guidance to reading a stellar spectrum than formal courses, and that experience led to our proposing to honor CMS with a symposium at the IAU General Assembly in Busan, South Korea.

In contrast to the astronomical measurements done at the time that CMS was assembling her multiplet tables, modern astronomical spectroscopy covers the whole electromagnetic spectrum at ever higher precision and sensitivity, causing increasing demands on the quantity and quality of laboratory data. These now cover not only atomic spectra, but molecular spectra, ices, dust properties, aerosols, and other physical systems. We gathered in Busan an international group of speakers to show the breadth of current research. These proceedings provide a record of that.

We start with a history of CMS’ career and personal life, followed by a presentation on the current implications and ramifications of her professional work. We hope you enjoy these papers as much as we enjoyed hearing them.

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