

Contents

Part I Abundances and Isotopes

Lithium Isotopic Abundances in Stars	
<i>Poul Erik Nissen, Martin Asplund</i>	3
Lithium Isotopic Abundances in Old Stars	
<i>Ana Elia García Pérez, Susumu Inoue, Wako Aoki, Sean Ryan</i>	9
Accurate Quantitative Spectroscopy of OB Stars: the H, He and C Spectrum	
<i>M.F. Nieva, N. Przybilla</i>	15
High Resolution Spectroscopy of HgMn stars: A Time of Surprises	
<i>S. Hubrig, C.R. Cowley, F. González, F. Castelli</i>	19
High-resolution Spectroscopy of Faint Stars with Transiting Planets	
<i>N.C. Santos, C. Melo, F. Pont, T. Guillot, A. Ecuivillon, M. Mayor, S. Udry, D. Queloz, G. Israelian, F. Bouchy, C. Moutou</i>	21
First Resolved Narrow Line Profiles in Ultracool Dwarfs	
<i>Ansgar Reiners</i>	25
Physical Parameters of Evolved Stars in Clusters and in the Field from Line-depth Ratios	
<i>K. Biazzo, L. Pasquini, A. Frasca, L. da Silva, L. Girardi, A. P. Hatzes, J. Setiawan, S. Catalano, E. Marilli</i>	29
UVES and CRIRES Spectroscopy of AGB Stars: Technetium and the Third Dredge-up	
<i>Stefan Uttenthaler, Hans Ulrich Käufl, Josef Hron, Thomas Lebzelter, Maurizio Busso, Mathias Schultheis</i>	35
Characterisation of the Ursa Major Group	
<i>Matthias Ammler, Eike W. Guenther</i>	39

VIII Contents

[C/O] Observations in Low-[Fe/H] Halo Stars <i>D. Fabbian, P. E. Nissen, M. Asplund, C. J. Akerman, M. Pettini</i>	45
Oxygen Abundances in Metal-poor Stars, from [OI], OI and IR OH Lines <i>B. Barbuy, J. Meléndez</i>	47
Sulphur Abundances in Metal-poor Stars <i>P.E. Nissen, C. Akerman, M. Asplund, D. Fabbian, M. Pettini</i>	51
Isotopic Abundances of Eu, Ba, and Sm in Metal-Poor Stars <i>Ian U. Roederer, Chris Sneden, James E. Lawler, Jennifer S. Sobeck, Catherine A. Pilachowski, John J. Cowan</i>	55
<hr/>	
Part II QSO Absorption Lines	
Gas-phase Deuterium Abundances, Near and Far <i>Edward B. Jenkins</i>	63
Comprehensive Abundance Measurements in Damped Lyα Systems <i>M. Dessauges-Zavadsky, J. X. Prochaska, S. D'Odorico, F. Calura, F. Matteucci</i>	69
Molecular Hydrogen at High Redshift and the Variation with Time of the Electron-to-proton Mass Ratio, $\mu = m_e/m_p$ <i>P. Petitjean, C. Ledoux, R. Srianand, P. Noterdaeme, A. Ivanchik</i> ...	73
Spectroscopy of QSO Pairs <i>Sara L. Ellison</i>	77
Small-scale Structure of High-redshift OVI Absorption Systems <i>S. Lopez, S. Ellison, S. D'Odorico, T.-S. Kim</i>	83
Hot Halos around High-Redshift Galaxies <i>Andrew J. Fox, Patrick Petitjean, Cédric Ledoux, R. Srianand</i>	85
<hr/>	
Part III Fundamental Constants	
Astrophysical Probes of Fundamental Physics <i>C.J.A.P. Martins</i>	89
Revisiting VLT/UVES Constraints on a Varying Fine-structure Constant <i>M. T. Murphy, J. K. Webb, V. V. Flambaum</i>	95

On the Variation of the Fine-structure Constant, and Precision Spectroscopy	
<i>Chand, H., Srianand, R., Petitjean, P., Aracil, B.</i>	101
High-Precision Measurements of $\Delta\alpha/\alpha$ from QSO Absorption Spectra	
<i>Sergei A. Levshakov, Paolo Molaro, Sebastian Lopez, Sandro D'Odorico, Miriam Centurión, Piercarlo Bonifacio, Irina I. Agafonova, Dieter Reimers</i>	105
Probing Fundamental Constant Evolution with Redshifted OH Lines	
<i>Nissim Kanekar, Jayaram N Chengalur, Tapasi Ghosh</i>	109
A Molecular Probe of Dark Energy	
<i>Roger I. Thompson</i>	113

Part IV Beyond Photon Noise

Establishing Wavelength Standards in the near Infra-red: Th-Ar	
<i>Florian Kerber, Gillian Nave, Craig. J. Sansonetti, Gaspare Lo Curto, Paul Bristow, Michael R. Rosa</i>	119
Atomic Data for Astrophysics - Parameters, Precision, Priorities	
<i>Sveneric Johansson</i>	123
Optimal Extraction of Echelle Spectra	
<i>Nikolai Piskunov</i>	129
Hydrodynamical Model Atmospheres and 3D Spectral Synthesis	
<i>Hans-Günter Ludwig, Matthias Steffen</i>	133
Intrinsic Lineshifts in Astronomical Spectra	
<i>Dainis Drawins</i>	139
Study of Line Bisectors and its Relation with Precise Radial Velocities in the Search for Extrasolar Planets	
<i>A. F. Martínez Fiorenzano</i>	143
A Pan-Spectral Method of Abundance Determination	
<i>A. Sapar, A. Aret, L. Sapar, R. Poolamäe</i>	145
Spectroscopic Binary Mass Determination Using Relativity	
<i>Shay Zucker, Tal Alexander</i>	149

Part V Asteroseismology/Oscillations

Asteroseismology Across the HR Diagram*Mário J. P. F. G. Monteiro* 155**High-Precision Spectroscopy of Pulsating Stars***C. Aerts, S. Hekker, M. Desmet, F. Carrier, W. Zima, M. Briquet, J. De Ridder* 161**Mapping Atmospheric Motions in Classical and Type II Cepheids***Monika Jurkovic, József Vinkó* 165**Iron Abundances of Southern Double-mode Cepheids from High-resolution Echelle Spectroscopy***K. Sziládi, J. Vinkó, L. Szabados, M. Kun, E. Poretti* 169

Part VI Planets

Radial Velocity Planet Detection using a Gas Absorption Cell*William D. Cochran, Artie P. Hatzes, Michael Endl, Diane B. Paulson, Robert A. Wittenmyer* 175**Pushing Down the Limits of the Radial Velocity Technique***C. Lovis, M. Mayor, F. Pepe, D. Queloz, S. Udry* 181**Transiting Planets: Follow the FLAMES...***C. Melo, N.C. Santos, F. Pont, M. Mayor, S. Udry, D. Queloz, F. Bouchy* 185**Planet Detection Around M Dwarfs: New Constraints on Planet Formation Models***T. Forveille, X. Bonfils, X. Delfosse, J.-L. Beuzit, C. Perrier, D. Ségransan, S. Udry, M. Mayor, F. Pepe, D. Queloz, F. Bouchy, J.-L. Bertaux* 191**Planets Around Giant Stars***A.P. Hatzes, M. Döllinger, L. Pasquini, J. Setiawan, L. Girardi, L. da Silva* 197**Planets Around Active Stars***J. Setiawan, P. Weise, Th. Henning, A.P. Hatzes, L. Pasquini, L. da Silva, L. Girardi, O. von der Lühe, M.P. Döllinger, A. Weiss, K. Biazzo* 201

A Catalogue of Nearby Exoplanets	
<i>Hugh R.A. Jones, R. Paul Butler, Jason T. Wright, Geoff W. Marcy, Deborah A. Fischer, Steve S. Vogt, Chris G. Tinney, Brad D. Carter, Jon A. Johnson, Chris McCarthy, Alan J. Penny</i>	205
Determination of the Orbital Parameters of a System with $N + 1$ Bodies using a Simple Fourier Analysis of the Data	
<i>Alexandre C.M. Correia</i>	207
Extrasolar Comets	
<i>Roger Ferlet, Jérémie Boissier, Alain Lecavelier des Etangs, and Alfred Vidal-Madjar</i>	211
Measuring Winds in Titan's Atmosphere with High-precision Doppler Velocimetry	
<i>David Luz, Régis Courtin</i>	215

Part VII Future Developments

The European Large Telescope and its Spectroscopic Instrumentation	
<i>Sandro D' Odorico</i>	221
CRIRES: A High Resolution Infrared Spectrograph for ESO's VLT	
<i>Hans Ulrich Käufl</i>	227
Stellar Oscillations Network Group: Asteroseismology and Planet Hunting	
<i>Frank Grundahl</i>	231
Interferometric Spectroscopy	
<i>Andreas Quirrenbach, Simon Albrecht</i>	235
A Global Network of 2 m-class spectroscopic telescopes	
<i>Mkrtychian D. E., Hatzes A. P., Lehmann H., Han I., Lee B. C., Kim K.-M., Sergeev A., Kameswara Rao N., Plachinda S.</i>	239
Possibility of Heterodyne Correlation Interferometry with a Tunable Laser and Absolute Frequency Measurements	
<i>S. Johansson, V. Letokhov</i>	243
CODEX	
<i>Luca Pasquini, G. Avila, B. Delabre, H. Dekker, S. D'Odorico, J. Liske, A. Manescau, P. Bonifacio, S. Cristiani, V. D'Odorico, P. Molaro, E. Vanzella, P. Santin, M. Viel, M. Dessauges-Zavadsky, C. Lovis, M. Mayor, F. Pepe, D. Queloz, S. Udry, M. Haehnelt, M. Murphy, R. Garcia-Lopez, F. Bouchy, S. Levshakov, S. Zucker</i>	249

Part VIII Posters

Precision Laboratory UV and IR Wavelengths for Cosmological and Astrophysical Applications	
<i>M. Aldenius, S. Johansson</i>	257
Abundance Analysis of α Centauri A	
<i>L. Bigot, F. Thévenin, J. Provost, G. Berthomieu</i>	259
The SB3 Star 74 Aqr: Abundances and Magnetic Field	
<i>G. Catanzaro, F. Leone</i>	261
Nitrogen Isotope Ratios in Comets	
<i>Anita L. Cochran, Emmanuel Jehin, Jean Manfroid, Damien Hutsemékers, Claude Arpigny, Jean-Marc Zucconi, Rita Schulz</i>	263
Finding Stable Fits for Extrasolar Planetary Systems	
<i>J. Couetdic, J. Laskar, A.C.M. Correia</i>	267
Heavy Calcium in CP Stars: A New Isotopic Anomaly	
<i>C. R. Cowley, S. Hubrig, F. Castelli, B. Wolff, F. González</i>	269
The Li Abundance and the Age of AB Dor Association	
<i>Licio da Silva, Carlos Alberto Torres, Ramiro de la Reza, Germano Quast, Claudio de Melo, Michael Sterzik</i>	271
Si and Ca Abundances of a Selected Sample of Evolved Stars	
<i>L. da Silva, L. Girardi, L. Pasquini, R. De Medeiros, J. Setiawan, M. Döllinger, A. Hatzes and A. Weiss</i>	273
Abundance Trends with Condensation Temperature in Planet-harbouring Stars: Hints of Pollution?	
<i>A. Ecuvillon, G. Israelian, N. C. Santos, M. Mayor, G. Gilli</i>	275
Using the HeII Lyα Forest to Constrain the Temperature of the IGM	
<i>Cora Fechner</i>	277
Production of H_3^+ and D_3^+ from $(CH_3)_2CO$ and $(CD_3)_2CO$ in PDR'S	
<i>A.M. Ferreira-Rodrigues^{1*}, S. Pilling, A.C.F. Santos, G.G.B de Souza and H.M. Boechat-Roberty</i>	279
Bisectors as Distance Estimators for Microquasars?	
<i>C. Foellmi</i>	283
Metallicity of Pleiades Dwarf	
<i>H. Funayama Y. Itoh Y. Oasa E. Toyota and T. Mukai</i>	285

Precision of Radial Velocity Surveys using Multiobject Spectrographs – Experiences with Hectochelle <i>Gábor Fúrész, Andrew H. Szentgyorgyi, Søren Meibom</i>	287
High Resolution Study of the Young Quadruple System AO Vel with an Eclipsing BpSi Primary <i>J. F. González, N. Nesvacil, S. Hubrig</i>	291
A Survey for Extrasolar Planets Around A–F Type Stars <i>M. Hartmann, A.P. Hatzes, E.W. Guenther, M. Esposito</i>	293
A Study of the Magnetic Helium Variable Emission-line Star HD 125823. <i>S. Hubrig, N. Nesvacil, F. González, B. Wolff, I. Savanov</i>	295
bHROS: The High-Resolution Optical Spectrograph at Gemini South <i>Steven J Margheim</i>	297
Stellar Wobble Caused by a Binary System: Investigation in the Framework of the General Three Body Problem <i>M.H.M. Morais, A.C.M. Correia</i>	299
The Chemical Composition of B-type Pulsators: Some Unexpected Results <i>T. Morel, M. Briquet, C. Aerts</i>	301
Radial Velocity Precision in the Near-Infrared with T-EDI <i>Philip S. Muirhead, David J. Erskine, Jerry Edelstein, Travis S. Barman, James P. Lloyd</i>	303
HD154708 - The Challenging Abundance Analysis of an Extremely Magnetic Star <i>N. Nesvacil, S. Hubrig, S. Khan</i>	305
A Search for Disk-Locking in the Chamaeleon I Star Forming Region <i>Duy Cuong Nguyen, Ray Jayawardhana, Marten van Kerkwijk, Alexis Brandeker, Aleks Scholz</i>	307
A Precision Radial Velocity Survey of Red Giants <i>Andrzej Niedzielski, Alex Wolszczan</i>	309
Chromospheric Lines as Diagnostics of Stellar Oscillations <i>Diane B. Paulson, W. Dean Pesnell, L. Drake Deming, Martin Snow, Travis S. Metcalfe, Tom Woods, Brigette Hesman</i>	311

Comparing 3D Solar Model Atmospheres with Observations: Hydrogen Lines and Centre-to-limb Variations	
<i>Tiago M. D. Pereira, Martin Asplund, Regner Trampedach</i>	313
Towards the Detection of Reflected Light from Exo-planets: a Comparison of Two Methods	
<i>Florian Rodler, Martin Kürster</i>	315
A Correlation Between the Activity Level and the Radial-velocity for Solar-type Stars?	
<i>N.C. Santos, C. Melo, C. Lovis, M. Billéres</i>	317
Spectroscopic Parameters for a Sample of Metal-rich Solar-type Stars	
<i>S.G. Sousa, N.C. Santos, G. Israelian, M. Mayor, M.J.P.F.G. Monteiro</i>	319
Radial Velocity Search for Extrasolar Planets in Binary Systems	
<i>E. Toyota, Y. Itoh, S. Ishiguma, D. Murata, Y. Oasa, B. Sato, T. Mukai</i>	321
Inferring Photospheric Velocities from P Cygni Lines in Type IIP Supernova Atmospheres	
<i>József Vinkó</i>	323
High-resolution Spectroscopic Characterization of Young Stars	
<i>Patrick Weise, Johny Setiawan, Thomas Henning, André Müller</i>	325
TIRAVEL – Template Independent RAdial VELOCITY Measurement	
<i>Shay Zucker, Tsevi Mazeh</i>	327