

Contents

Dedication	v
Contents	vii
Preface	xv
Participants	xvii
Conference Photograph	xxiv

Part 1. History

Eightieth Anniversary of Solar Physics at Coimbra	3
<i>Z. Mouradian, A. Garcia (invited talk)</i>	
Improvement of the Coimbra Spectroheliograph (1988–1992)	15
<i>I. Bualé, Z. Mouradian, B. Schmieder</i>	
Spectroheliographic Observations in Madrid (1912–1917)	17
<i>J. M. Vaquero, M. C. Gallego, F. J. Acero, J. A. García</i>	
ESMN in Memoriam (1998–2006)	21
<i>R. J. Rutten (invited speech)</i>	

Part 2. Structure and Dynamics of the Solar Chromosphere

Observing the Solar Chromosphere	27
<i>R. J. Rutten (keynote talk)</i>	
Modeling the Solar Chromosphere	49
<i>M. Carlsson (keynote talk)</i>	
High-Resolution Observations and Numerical Simulations of Chromospheric Fibrils and Mottles	65
<i>B. De Pontieu, V. H. Hansteen, L. Rouppe van der Voort, M. van Noort, M. Carlsson (keynote talk)</i>	

New Models of the Solar Chromosphere and Transition Region from SUMER Observations	81
<i>E. H. Avrett</i>	
What is Heating the Quiet-Sun Chromosphere?	93
<i>S. Wedemeyer-Böhm, O. Steiner, J. Bruls, W. Rammacher</i>	
Non-Equilibrium Hydrogen Ionization in the Solar Atmosphere	103
<i>J. Leenaarts, S. Wedemeyer-Böhm, M. Carlsson, V. H. Hansteen</i>	
3D Numerical Models of the Chromosphere, Transition Region, and Corona	107
<i>V. H. Hansteen, M. Carlsson, B. Gudiksen</i>	
Temporal Variations in Fibril Orientation	115
<i>J. Koza, P. Süttlerlin, A. Kučera, J. Rybák</i>	
2D Observation of a Small Active Region in H α	119
<i>A. Gültkin, Z. F. Bostancı, N. Al Erdogan</i>	
Temporal Evolution of Mottles in H α	123
<i>Z. F. Bostancı, N. Al Erdogan</i>	
Acoustic Shocks in the Quiet Solar Chromosphere	127
<i>G. Cauzzi, K. P. Reardon, A. Vecchio, K. Janssen, T. Rimmele</i>	
Propagating Waves in the Chromospheric Network	133
<i>P. Gömöry, J. Rybák, A. Kučera, W. Curdt, H. Wöhl</i>	
Chromospheric and Transition-Region Dynamics in Plage	137
<i>A. G. de Wijn, B. De Pontieu, R. J. Rutten</i>	
The Ca II Infrared Triplet Lines as Diagnostics of Chromospheric Magnetism	139
<i>A. Pietarila, H. Socas-Navarro, T. Bogdan</i>	
Chromospheric Spectrometry at High Spatial Resolution	145
<i>Ø. Langangen, M. Carlsson, L. Rouppe van der Voort, V. H. Hansteen, B. De Pontieu</i>	
Observations and Simulations of Ca II H and Ca II 8662	147
<i>W. Rammacher, W. Schmidt, R. Hammer</i>	
Comparison of Ca II K and Ca II 8542 Å Images	151
<i>K. P. Reardon, G. Cauzzi, T. Rimmele</i>	
Scattering Polarization of the Ca II Infrared Triplet as Diagnostic of the Quiet Solar Chromosphere	155
<i>R. Manso Sainz, J. Trujillo Bueno</i>	
The Magnetic Field of Solar Chromospheric Spicules	161
<i>J. Trujillo Bueno, R. Ramelli, L. Merenda, M. Bianda</i>	
A User-Friendly Code to Diagnose Chromospheric Plasmas	163
<i>A. Asensio Ramos, J. Trujillo Bueno</i>	

Multiwavelength Analysis of a Quiet Solar Region	171
<i>G. Tsiropoula, K. Tziotziou, J. Giannikakis, P. Young, U. Schühle, P. Heinzel</i>	
On the Dynamic Nature of the Prolate Chromosphere	177
<i>B. Filippov, S. Koutchmy, J. Vilinga</i>	
EUNIS Results on HeII 304 Å Line Formation	183
<i>S. D. Jordan, J. W. Brosius</i>	
Trapped Eigenoscillations in the Lower Solar Atmosphere: Is there a Resonant Coupling?	187
<i>R. Erdélyi, V. Fedun, Ch. Malins, B. Pintér</i>	
A Post-MHD for the Solar Atmosphere	193
<i>D. K. Callebaut</i>	
Stellar Atmospheres and the Diamagnetic Effect	197
<i>N. Farbiash, R. Steinitz</i>	

Part 3. Active Regions and Sunspots

Semiempirical Models of Solar and Stellar Active Chromospheres	203
<i>P. Mauas (keynote talk)</i>	
Chromospheric Cloud-Model Inversion Techniques	217
<i>K. Tziotziou (keynote talk)</i>	
Observations of Running Waves in a Sunspot Chromosphere	239
<i>D. S. Bloomfield, A. Lagg, S. K. Solanki</i>	
Some Structural Properties of Solar Magnetic Fields	245
<i>B. Iosha, E. Mogilevskii, V. Obridko</i>	
O VI and H ₂ Lines in Sunspots	247
<i>N. Labrosse, H. Morgan, S. R. Habbal, D. Brown</i>	
Models of the Large Scale Corona: Formation, Evolution and Lift-Off of Magnetic Flux Ropes	251
<i>D. H. Mackay, A. A. van Ballegooijen</i>	
Spectrophotometry of Ellerman Bombs with THEMIS	253
<i>E. Pariat, B. Schmieder, A. Berlicki, A. López Ariste</i>	
Horizontal Motion in the Vicinity of Sunspots	259
<i>M. Sobotka, T. Roudier</i>	
Chromospheric Activity in K Stars	265
<i>M. Vieytes, P. Mauas, C. Cincunegui, R. Diaz</i>	

Part 4. Prominences and Filaments

The Fine Structure of Solar Prominences	271
<i>P. Heinzel (keynote talk)</i>	
Unveiling the Magnetic Field Topology of Prominences	291
<i>A. López Ariste, G. Aulanier (keynote talk)</i>	
Radiative Transfer in Prominence Fine Structure as a Multi-Component Atmosphere	307
<i>A. Ajabshirizadeh, H. Ebadi</i>	
Polarimetric Properties of the D ₂ Lines of Alkali Atoms	311
<i>L. Belluzzi, E. Landi Degl'Innocenti, J. Trujillo Bueno</i>	
Prominence Parameters from 2D Modeling of Lyman Lines Measured with SUMER	317
<i>S. Gunár, P. Heinzel, B. Schmieder, U. Anzer</i>	
Imaging of the He D ₃ /H β Emission Ratio in Quiescent Solar Prominences	321
<i>J. Hirzberger, E. Wiehr, G. Stellmacher</i>	
White-Light Emission of Solar Prominences	325
<i>S. Jejčić, P. Heinzel</i>	
Old and New Aspects of Prominence Physics from Coronal Observations .	331
<i>S. Koutchmy, B. Filippov, P. Lamy</i>	
Spectral Diagnostics of Active Prominences	337
<i>N. Labrosse, P. Gouttebroze, J.-C. Vial</i>	
Modeling the Hemispheric Pattern of Solar Filaments	343
<i>D. H. Mackay, A. A. van Ballegooijen</i>	
A Magnetic Map of a Solar Filament	347
<i>L. Merenda, J. Trujillo Bueno, M. Collados</i>	
Coronagraphic Broad-Band H α Observations 1998–2000	351
<i>N. Meunier, J-C. Noëns, D. Romeuf, S. Koutchmy, R. Jimenez, O. Wurmser, S. Rochain and the O.A. team</i>	
Chromospheric Filament Network and Coronal Streamers	355
<i>T. Pintér, M. Rybanský, I. Dorotovič</i>	
Non-LTE Analysis of Lyman-Line Observations of a Filament with SUMER	359
<i>P. Schwartz, B. Schmieder, P. Heinzel</i>	

Part 5. Chromospheric Flares

Chromospheric Flares	365
<i>H. Hudson (keynote talk)</i>	

Observations and Modeling of Line Asymmetries in Chromospheric Flares	387
<i>A. Berlicki (keynote talk)</i>	
The Spotless Flare of March 16, 1981	411
<i>A. V. Borovik, D. Yu. Myachin</i>	
Radio Observations of the December 20, 2002 Flares	415
<i>G. Cristiani, I. De Benedetto e Silva, C. G. Giménez de Castro, C. H. Mandrini, M. G. Rovira, P. Kaufmann</i>	
The Origin of Solar White-Light Flares	417
<i>M. D. Ding</i>	
Energy Deposition in White Light Flares with TRACE and RHESSI	423
<i>L. Fletcher, I. G. Hannah, H. S. Hudson, T. R. Metcalf</i>	
Balmer-Line Diagnostics of Accelerated Particles	431
<i>L. K. Kashapova, P. Kotrč, Yu. A. Kupryakov</i>	
Signatures of High-Energy Particles in H α Emission	
Before the Solar Flare of August 16, 2004	437
<i>L. K. Kashapova, V. V. Zharkova, V. V. Grechnev</i>	
H α with Heating by Particle Beams	441
<i>J. Kašparová, M. Varady, M. Karlický, P. Heinzel, Z. Moravec</i>	
Spectroscopic Properties of Solar Flares in Different Lines	447
<i>H. Li, J. You</i>	
Comparison of H α and Ca II K from flares	453
<i>J. Klimeš, E. Marková</i>	
Line Profile Asymmetries in Records from the Multichannel	
Flare Spectrograph	457
<i>T. Prosecký</i>	
Multiwavelength Study of the May 13, 2005 Flare Event	461
<i>M. G. Rovira, S. Šimberová, M. Karlický, M. L. Luoni, F. Fárník</i>	
Full-Stokes Observations and Analysis of He I 10830 Å in a Flaring Region	467
<i>C. Sasso, A. Lagg, S. K. Solanki, R. Aznar Cuadrado, M. Collados</i>	
Return Current and Energy Deposit in Flares	473
<i>M. Varady, M. Karlický, J. Kašparová</i>	

Part 6. Long-term Solar Variations

Solar Cycle Variation of Chromospheric Radiation	481
<i>S. K. Solanki (keynote talk)</i>	
Chromospheric Heating and Low-Chromosphere Modeling	499
<i>J. M. Fontenla, K. S. Balasubramaniam, J. Harder (keynote talk)</i>	

Automation of Meudon Synoptic Maps	505
<i>J. Aboudarham, I. Scholl, N. Fuller, M. Fouesneau, M. Galametz, F. Gonon, A. Maire, Y. Leroy</i>	
Regularities in the Distribution of Solar Magnetic Fields	511
<i>V. Bumba, M. Klvaňa, A. Garcia</i>	
Synoptic Observing at Big Bear Solar Observatory	515
<i>C. Denker, M. Naqvi, N. Deng, A. Tritschler, W. H. Marquette</i>	
COSIS: Coimbra Observatory Solar Information System	523
<i>I. Dorotovič, J. Fernandes, J. M. Fonseca, A. Mora, C. Moreira, R. A. Ribeiro</i>	
North-South Asymmetry of Ca II K Plages	527
<i>I. Dorotovič, P. Journoud, J. Rybák, J. Sýkora</i>	
Solar Activity and Irradiance Studies with Ca II Spectroheliograms: Potential and Problems	533
<i>I. Ermolli, A. Tlatov, S. K. Solanki, N. A. Krivova, J. Singh</i>	
North-South Asymmetry of Solar Activity during Cycle 23	539
<i>B. Joshi, P. Pant, P. K. Manoharan, K. Pandey</i>	
Is the Mn I 539.4 nm Variation with Activity Explained?	543
<i>N. Vitas, I. Vince</i>	

Part 7. Solar Physics Instrumentation

The Modernized Spectroheliograph at Coimbra	549
<i>M. Klvaňa, A. Garcia, V. Bumba</i>	
The Modernized Solar Spectrograph at Ondřejov	559
<i>P. Kotrč</i>	
H α Observations at Modra-Piesok	569
<i>A. Kulinová, E. Dzifčáková, D. Kalmančok, P. Zigo</i>	
Aperture Increase Options for the Dutch Open Telescope	573
<i>R. H. Hammerschlag, F. C. M. Bettonvil, A. P. L. Jägers, R. J. Rutten</i>	
THEMIS Instrumentation and Strategy for the Future	593
<i>B. Gelly</i>	
GREGOR: the New German Solar Telescope	605
<i>H. Balthasar, O. von der Lühe, F. Kneer, J. Staude, R. Volkmer, T. Berkefeld, P. Caligari, M. Collados, C. Halbgewachs, F. Heidecke, A. Hofmann, M. Klvaňa, H. Nicklas, E. Popow, K. Puschmann, W. Schmidt, M. Sobotka, D. Soltau, K. Strassmeier, A. Wittmann</i>	
Tenerife Infrared Polarimeter II	611
<i>M. Collados, A. Lagg, J. J. Díaz García, E. Hernández Suárez, R. López López, E. Páez Mañá, S. K. Solanki</i>	

Simulation of Magneto-Optical Filter Transmission Profiles	617
<i>G. Severino, M. Oliviero, E. Landi Degli'Innocenti</i>	
Šolc Birefringent Filter for Various Interesting Lines	621
<i>R. Melich, Z. Melich, I. Šolc</i>	
Measurement of the Polarization of the Flash Spectrum during a Total Solar Eclipse	627
<i>A. Feller, R. Ramelli, J. O. Stenflo, D. Gisler</i>	
Chromospheric Science with the STEREO Mission	633
<i>A. Vourlidas</i>	
Chromospheric and Prominence Physics with the ASPIICS Formation Flying Coronagraph	639
<i>P. Lamy, S. Vivès, S. Koutchmy, J. Arnaud</i>	
Solar Orbiter: a Mission Update	645
<i>R. G. Marsden, B. Fleck</i>	