

## Table of Contents

Foreword . . . . .	xii
Scientific Organizing Committee . . . . .	xiii
Conference photograph . . . . .	xiv
Participants . . . . .	xvi

## General Introduction

Magnetic Fields in Stars: Origin and Impact . . . . .	1
<i>N. Langer</i>	

## Session 1: Magnetized stellar formation

The Role of Magnetic Fields in Star Formation . . . . .	10
<i>R. E. Pudritz, M. Klassen, H. Kirk, D. Seifried &amp; R. Banerjee</i>	
Magnetic field dispersion in the neighbourhood of Bok Globules . . . . .	21
<i>C. V. Rodrigues, V. de S. Magalhães, J. W. Vilas-Boas, G. Racca &amp; A. Pereyra</i>	
The role of magnetic fields in pre-main sequence stars . . . . .	25
<i>G. A. J. Hussain &amp; E. Alecian</i>	
Magnetic Fields in 7 Young Stellar Objects Observed with Nançay Radio Telescope . . . . .	38
<i>O. Bayandina, A. Alakoz &amp; I. Val'tts</i>	
Can we predict the magnetic properties of PMS stars from their H-R diagram location? . . . . .	40
<i>S. G. Gregory, J.-F. Donati, J. Morin, G. A. J. Hussain, N. J. Mayne, L. A. Hillenbrand &amp; M. Jardine</i>	
The magnetosphere of the close accreting PMS binary V4046 Sgr AB . . . . .	44
<i>S. G. Gregory, V. R. Holzwarth, J.-F. Donati, G. A. J. Hussain, T. Montmerle, E. Alecian, S. H. P. Alencar, C. Argiroffi, M. Audard, J. Bouvier, F. Damiani, M. Güdel, D. P. Huenemoerder, J. H. Kastner, A. Maggio, G. G. Sacco &amp; G. A. Wade</i>	
V4046 Sgr: X-rays from accretion shock . . . . .	46
<i>C. Argiroffi, A. Maggio, T. Montmerle, D. Huenemoerder, E. Alecian, M. Audard, J. Bouvier, F. Damiani, J.-F. Donati, S. Gregory, M. Güdel, G. Hussain, J. Kastner &amp; G. G. Sacco</i>	
X-rays from accretion shocks in classical T Tauri stars: 2D MHD modeling and the role of local absorption . . . . .	48
<i>C. Argiroffi, R. Bonito, S. Orlando, M. Miceli, F. Reale, G. Peres, T. Matsakos, C. Sthelé &amp; L. Ibgui</i>	
Analysis of star-disk interaction in young stellar systems . . . . .	50
<i>N. N. J. Fonseca, S. H. P. Alencar &amp; J. Bouvier</i>	

vi	<i>Contents</i>	
Magnetospheric Accretions and the Inner Winds of Classical T Tauri Stars . . . .		54
<i>R. Kurosawa &amp; M. M. Romanova</i>		
Building a numerical relativistic non-ideal magnetohydrodynamics code for astro- physical applications . . . . .		64
<i>S. Miranda Aranguren, M. A. Aloy &amp; C. Aloy</i>		
3D YSO accretion shock simulations: a study of the magnetic, chromospheric and stochastic flow effects . . . . .		66
<i>T. Matsakos, J.-P. Chièze, C. Stehlé, M. González, L. Ibgui, L. de Sá, T. Lanz, S. Orlando, R. Bonito, C. Argiroffi, F. Reale &amp; G. Peres</i>		
Magnetic higher-mass stars in the early stages of their evolution . . . . .		70
<i>J. H. Grunhut &amp; E. Alecian</i>		
What do weak magnetic fields mean for magnetospheric accretion in Herbig AeBe star+disk systems? . . . . .		80
<i>A. N. Aarnio, J. D. Monnier, T. J. Harries &amp; D. M. Acreman</i>		
Searches for the new magnetic intermediate-mass stars on various stages of MS evolution . . . . .		84
<i>E. A. Semenko</i>		
Chemical peculiarities in magnetic and non-magnetic pre-main sequence A and B stars . . . . .		87
<i>C. P. Folsom, S. Bagnulo, G. A. Wade, J. D. Landstreet &amp; E. Alecian</i>		
Angular momentum evolution of young stars . . . . .		91
<i>S. P. Littlefair</i>		
The Effects of Magnetic Activity on Lithium-Inferred Ages of Stars . . . . .		100
<i>A. J. Juarez, P. A. Cargile, D. J. James &amp; K. G. Stassun</i>		
Activity and Rotation in the Young Cluster h Per . . . . .		102
<i>C. Argiroffi, M. Caramazza, G. Micela, E. Moraux &amp; J. Bouvier</i>		
X-ray emission regimes and rotation sequences in the M34 open cluster . . . . .		106
<i>P. Gondoin</i>		
The evolution of surface magnetic fields in young solar-type stars . . . . .		110
<i>C. P. Folsom, P. Petit, J. Bouvier, J.-F. Donati &amp; J. Morin</i>		
Stellar models of rotating, pre-main sequence low-mass stars with magnetic fields		112
<i>L. T. S. Mendes, N. R. Landin &amp; L. P. R. Vaz</i>		
<b>Session 2: Magnetic activity in the Sun and main-sequence stars with convective outer layers</b>		
Rotation and magnetism of solar-like stars: from scaling laws to spot-dynamos .		114
<i>A. S. Brun</i>		
Probing the structure of local magnetic field of solar features with helioseismology		126
<i>K. Daiifallah</i>		
Hanle and Zeeman effects: from solar to stellar diagnostics . . . . .		130
<i>A. L. Ariste</i>		

<i>Contents</i>	vii
Coronal influence on dynamos . . . . .	134
<i>J. Warnecke &amp; A. Brandenburg</i>	
A Bcool spectropolarimetric survey of over 150 solar-type stars . . . . .	138
<i>S. Marsden, P. Petit, S. Jeffers, J.-D. do Nascimento, B. Carter, C. Brown on behalf of the Bcool project team</i>	
High-resolution spectropolarimetry of $\kappa$ Cet: A proxy for the young Sun. . . . .	142
<i>J. D. do Nascimento, P. Petit, M. Castro, G. F. Porto de Mello, S. V. Jeffers, S. C. Marsden, I. Ribas, E. Guinan &amp; the Bcool Collaboration</i>	
Theoretical evolution of Rossby number for solar analog stars . . . . .	144
<i>M. Castro, T. Duarte &amp; J. D. do Nascimento Jr.</i>	
The large scale magnetic field of the G0 dwarf HD 206860 (HN Peg). . . . .	146
<i>S. B. Saikia, S. V. Jeffers, P. Petit, S. Marsden, J. Morin, A. Reiners &amp; the Bcool project</i>	
Starspots on Young Solar-Type Stars. . . . .	148
<i>C. Brown, B. Carter, S. Marsden &amp; I. Waite</i>	
Do Magnetic Fields Actually Inflate Low-Mass Stars? . . . . .	150
<i>G. A. Feiden &amp; B. Chaboyer</i>	
A new spectropolarimeter for the San Pedro Martir National Observatory . . . . .	154
<i>E. Iñiguez-Garín, D. Hiriart, J. Ramirez-Velez, J. M. Núñez-Alfonso, J. Herrera &amp; J. Castro-Chacón</i>	
Magnetic Fields in Low-Mass Stars: An Overview of Observational Biases . . . . .	156
<i>A. Reiners</i>	
On the spectropolarimetric signature of FeH in the laboratory and in sunspots . . . . .	164
<i>P. Crozet, A. J. Ross, N. Alleq, A. L. Ariste, C. Le Men &amp; B. Gelly</i>	
What controls the large-scale magnetic fields of M dwarfs? . . . . .	166
<i>T. Gastine, J. Morin, L. Duarte, A. Reiners, U. Christensen &amp; J. Wicht</i>	
Magnetic fields in M-dwarfs from high-resolution infrared spectroscopy . . . . .	170
<i>D. Shulyak, A. Reiners, U. Seemann, O. Kochukhov &amp; N. Piskunov</i>	
Bridging planets and stars using scaling laws in anelastic spherical shell dynamos . . . . .	174
<i>R. K. Yadav, T. Gastine, U. R. Christensen &amp; L. Duarte</i>	
Age, Activity and Rotation in Mid and Late-Type M Dwarfs from MEarth . . . . .	176
<i>A. A. West, K. L. Weisenburger, J. Irwin, D. Charbonneau, J. Dittmann &amp; Z. K. Berta-Thompson</i>	
Magnetic fields of Sun-like stars . . . . .	180
<i>R. Fares</i>	
Stellar Magnetic Dynamos and Activity Cycles . . . . .	190
<i>N. J. Wright</i>	
Differential rotation and meridional flows in stellar convection zones . . . . .	194
<i>M. Küker &amp; G. Rüdiger</i>	
Meridional flow velocities for solar-like stars with known activity cycles . . . . .	196
<i>D. Baklanova &amp; S. Plachinda</i>	

viii	<i>Contents</i>	
On the reliability of measuring differential rotation of spotted stars.....		198
<i>Z. Kóvári, J. Bartus, L. Kriskovics, K. Vida &amp; K. Oláh</i>		
Hyper X-ray Flares on Active Stars Detected with MAXI.....		200
<i>M. Higa, Y. Tsuboi, H. Negoro, S. Nakahira, H. Tomida, M. Matsuoka &amp; The MAXI team</i>		
Modeling transiting exoplanet and spots For interferometric study.....		202
<i>R. Ligi, D. Mourard, K. Perraut, P. Bério, L. Bigot, A. Chiavassa, A.-M. Lagrange &amp; N. Nardetto</i>		
Stellar Magnetism in the Era of Space-Based Precision Photometry.....		206
<i>L. M. Walkowicz</i>		
The new age of spotted star research using <i>Kepler</i> and CHARA.....		212
<i>R. M. Roettenbacher, J. D. Monnier, R. O. Harmon &amp; H. H. Korhonen</i>		
Rotation & differential rotation of the active <i>Kepler</i> stars.....		216
<i>T. Reinhold, A. Reiners &amp; G. Basri</i>		
Starspots Magnetic field by transit mapping.....		220
<i>A. Válio &amp; E. Spaggiari</i>		
Investigating magnetic activity of F stars with the <i>Kepler</i> mission.....		222
<i>S. Mathur, R. A. García, J. Ballot, T. Ceillier, D. Salabert, T. S. Metcalfe, C. Régulo, A. Jiménez &amp; S. Bloemen</i>		
Detecting activity cycles of late-type dwarfs in <i>Kepler</i> data.....		224
<i>K. Vida &amp; K. Oláh</i>		
The effects of stellar winds and magnetic fields on exoplanets.....		228
<i>A. A. Vidotto</i>		
Planetary protection in the extreme environments of low-mass stars.....		237
<i>A. A. Vidotto, M. Jardine, J. Morin, J.-F. Donati, P. Lang &amp; A. J. B. Russell</i>		
Planets spinning up their host stars: a twist on the age-activity relationship....		239
<i>K. Poppenhaeger &amp; S. J. Wolk</i>		
Constraining Stellar Winds of Young Sun-like Stars.....		243
<i>C. P. Johnstone, T. Lüftinger, M. Güdel &amp; B. Fichtinger</i>		
Bow shocks and winds around HD 189733b.....		245
<i>J. Llama, A. A. Vidotto, M. Jardine, K. Wood &amp; R. Fares</i>		
Stellar Magnetism and starspots: the implications for exoplanets.....		247
<i>C. Vilela, J. Southworth &amp; C. del Burgo</i>		
On the effects of stellar winds on exoplanetary magnetospheres.....		251
<i>V. See, M. Jardine, A. A. Vidotto, P. Petit, S. C. Marsden &amp; S. V. Jeffers</i>		
<b>Session 3: Origin and impact of magnetic fields in higher-mass stars with radiative outer layers</b>		
The nature and origin of magnetic fields in early-type stars.....		255
<i>J. Braithwaite</i>		

<i>Contents</i>	ix
The magnetic characteristics of Galactic OB stars from the MiMeS survey of magnetism in massive stars . . . . .	265
<i>G. A. Wade, J. Grunhut, E. Alecian, C. Neiner, M. Aurière, D. A. Bohlender, A. David-Uraz, C. Folsom, H. F. Henrichs, O. Kochukhov, S. Mathis, S. Owocki, V. Petit &amp; the MiMeS Collaboration</i>	
Magnetic fields of OB stars . . . . .	270
<i>A. F. Kholttygin, S. Hubrig, N. A. Drake, N. Sudnik &amp; V. Dushin</i>	
New observations of chemically peculiar stars with ESPaDO nS . . . . .	272
<i>V. Khalack, B. Yameogo, C. Thibeault &amp; F. LeBlanc</i>	
The analysis of Li I 6708Å line through the rotational period of HD166473 taking into account Paschen-Back magnetic splitting . . . . .	274
<i>A. V. Shavrina, V. Khalack, Y. Glagolevskij, D. Lyashko, J. Landstreet, F. Leone &amp; M. Giarrusso</i>	
Bp stars in Orion OB1 association . . . . .	276
<i>I. I. Romanyuk &amp; I. A. Yakunin</i>	
“Stellar Prominences” on OB stars to explain wind-line variability . . . . .	280
<i>H. F. Henrichs &amp; N. P. Sudnik</i>	
Partial Paschen-Back splitting of Si II and Si III lines in magnetic CP stars . . . . .	284
<i>V. Khalack &amp; J. Landstreet</i>	
The Dominion Astrophysical Observatory Magnetic Field Survey (DMFS) . . . . .	288
<i>D. A. Bohlender &amp; D. Monin</i>	
Modeling surface magnetic fields in stars with radiative envelopes . . . . .	290
<i>O. Kochukhov</i>	
New Experiments with Zeeman Doppler Mapping . . . . .	300
<i>A. J. Martin, S. Bagnulo &amp; M. J. Stift</i>	
Combining magnetic and seismic studies to constrain processes in massive stars . . . . .	302
<i>C. Neiner, P. Degroote, B. Coste, M. Briquet &amp; S. Mathis</i>	
Magnetic fields of Ap stars from full Stokes vector spectropolarimetric observations . . . . .	304
<i>N. Rusomarov, O. Kochukhov &amp; N. Piskunov</i>	
Magnetic Doppler Imaging of He-strong star HD 184927 . . . . .	306
<i>I. Yakunin, G. Wade, D. Bohlender, O. Kochukhov, V. Tsymbal &amp; MiMeS Collaborators</i>	
roAp stars: surface lithium abundance distribution and magnetic field configuration . . . . .	309
<i>N. Polosukhina, D. Shulyak, A. Shavrina, D. Lyashko, N. A. Drake, Yu. Glagolevskij, D. Kudryavtsev &amp; M. Smirnova</i>	
Roadmap on the theoretical work of BinaMIcS . . . . .	311
<i>S. Mathis, C. Neiner, E. Alecian, G. Wade &amp; the BinaMIcS collaboration</i>	
Candidate Ap stars in close binary systems . . . . .	313
<i>C. P. Folsom, G. A. Wade, K. Likuski, O. Kochukhov, E. Alecian, D. Shulyak &amp; N. M. Johnson</i>	

x	<i>Contents</i>	
The unusual binary HD 83058 in the region of the Scorpius-Centaurus OB association . . . . .		315
	<i>M. A. Pogodin, N. A. Drake, E. G. Jilinski &amp; C. B. Pereira</i>	
Binary and multiple magnetic Ap/Bp stars . . . . .		317
	<i>D. Rastegaev, Y. Balega, V. Dyachenko, A. Maksimov &amp; E. Malogolovets</i>	
Wind channeling, magnetospheres, and spindown of magnetic massive stars . . . .		320
	<i>S. P. Owocki, A. ud-Doula, R. H. D. Townsend, V. Petit, J. O. Sundqvist &amp; D. H. Cohen</i>	
X-rays from magnetic massive OB stars . . . . .		330
	<i>V. Petit, D. H. Cohen, Y. Nazé, M. Gagné, R. H. D. Townsend, M. A. Leutenegger, A. ud-Doula, S. P. Owocki &amp; G. A. Wade</i>	
Investigating the origin of cyclical spectral variations in hot, massive stars . . . .		334
	<i>A. David-Uraz, G. A. Wade, V. Petit &amp; A. ud-Doula</i>	
The dichotomy between strong and ultra-weak magnetic fields among intermediate-mass stars . . . . .		338
	<i>F. Lignières, P. Petit, M. Aurière, G. A. Wade &amp; T. Böhm</i>	
UVMag: a UV and optical spectropolarimeter for stellar physics . . . . .		348
	<i>C. Neiner, P. Petit, L. Parès &amp; the UVMag consortium</i>	
<b>Session 4: Magnetic fields in the ultimate stages of stellar evolution</b>		
Surface magnetism of cool giant and supergiant stars . . . . .		350
	<i>H. Korhonen</i>	
Pollux: a stable weak dipolar magnetic field but no planet? . . . . .		359
	<i>M. Aurière, R. Konstantinova-Antova, O. Espagnet, P. Petit, T. Roudier, C. Charbonnel, J.-F. Donati &amp; G. A. Wade</i>	
On dynamo action in the giant star Pollux : first results . . . . .		363
	<i>A. Palacios &amp; A. S. Brun</i>	
The Hertzsprung-gap giant 31 Comae in 2013: Magnetic field and activity indicators		365
	<i>A. P. Borisova, R. Konstantinova-Antova, M. Aurière, P. Petit &amp; C. Charbonnel</i>	
Magnetic Field Structure and Activity of the He-burning Giant 37 Comae . . . .		367
	<i>S. Tsvetkova, P. Petit, R. Konstantinova-Antova, M. Aurière, G. A. Wade, C. Charbonnel &amp; N. A. Drake</i>	
Strong variable linear polarization in the cool active star II Peg . . . . .		369
	<i>L. Rosén, O. Kochukhov &amp; G. A. Wade</i>	
Magnetic fields in single late-type giants in the Solar vicinity: How common is magnetic activity on the giant branches? . . . . .		373
	<i>R. Konstantinova-Antova, M. Aurière, C. Charbonnel, N. Drake, G. Wade, S. Tsvetkova, P. Petit, K.-P. Schröder &amp; A. Lèbre</i>	
Evolution of magnetic activity in intermediate-mass giants . . . . .		377
	<i>P. Gondoin</i>	

<i>Contents</i>	xi
Surface differential rotation of IL Hya from time-series Doppler images . . . . .	379
<i>Z. Kóvári, L. Kriskovics, K. Oláh, K. Vida, J. Bartus, K. G. Strassmeier &amp; M. Weber</i>	
Magnetic field of the classical Cepheid $\eta$ Aql: new results . . . . .	381
<i>V. Butkovskaya, S. Plachinda, D. Baklanova &amp; V. Butkovskiy</i>	
Activity on a Li-rich giant: DIPsc revisited. . . . .	383
<i>L. Kriskovics, Z. Kóvári, K. Vida &amp; K. Oláh</i>	
Search for surface magnetic fields in Mira stars : first results on $\chi$ Cyg . . . . .	385
<i>A. Lèbre, M. Aurière, N. Fabas, D. Gillet, F. Herpin, P. Petit &amp; R. Konstantinova-Antova</i>	
Magnetic fields around AGB stars and Planetary Nebulae . . . . .	389
<i>W. H. T. Vlemmings</i>	
Magnetic fields in Proto Planetary Nebulae . . . . .	398
<i>L. Sabin, Q. Zhang, A. A. Zijlstra, N. A. Patel, R. Vázquez, B. A. Zauderer, M. E. Contreras &amp; P. F. Guillén</i>	
Polarimetry of R Aqr and PN M2-9 . . . . .	400
<i>S. G. Navarro, L. Sabin, J. Ramírez &amp; D. Hiriart</i>	
Measurements of the magnetic field in WD 1658+441 . . . . .	402
<i>V. J. Ramírez, D. Hiriart, G. Valyavin, J. Valdez, F. Quiroz, B. Martínez, S. Plachinda &amp; E. Iñiguez-Garín</i>	
Hydromagnetic Equilibria and their Evolution in Neutron Stars . . . . .	404
<i>A. Reisenegger</i>	
Hall Effect in Neutron Star Crusts . . . . .	415
<i>K. N. Gourgouliatos &amp; A. Cumming</i>	
Magnetohydrodynamic equilibria in barotropic stars . . . . .	419
<i>C. Armaza, A. Reisenegger, J. A. Valdivia &amp; P. Marchant</i>	
Magnetic field structures inside magnetars with strong toroidal field . . . . .	423
<i>K. Fujisawa</i>	
Axisymmetric and stationary magnetic field structures in neutron star crusts under various boundary conditions . . . . .	427
<i>K. Fujisawa &amp; S. Kisaka</i>	
Magnetars: the explosive character of a small class of strongly magnetized neutron stars . . . . .	429
<i>N. Rea</i>	
NSMAXG: A new magnetic neutron star spectral model in XSPEC . . . . .	435
<i>W. C. G. Ho</i>	
Effects of strong magnetic fields in dense stellar matter . . . . .	439
<i>A. Lavagno &amp; F. Lingua</i>	
Search for Stable Magnetohydrodynamic Equilibria in Barotropic Stars . . . . .	441
<i>J. P. Mitchell, J. Braithwaite, N. Langer, A. Reisenegger &amp; H. Spruit</i>	
Author index . . . . .	445