



5th SOLAR POLARIZATION WORKSHOP

A workshop in honor of Jan Olof Stenflo

organized by
Institute of Astronomy ETH Zurich
and
Istituto Ricerche Solari Locarno (IRSOL)

17 – 21 September 2007, Ascona, Switzerland

THIRD ANNOUNCEMENT

SCIENTIFIC PROGRAM

The workshop is expected to be a success. We have 121 registered participants and 125 abstracts submitted (a few more are still expected) with 50 contributions accepted for oral presentations in addition to 18 review talks. The detailed schedule of the workshop is enclosed below.

REGISTRATION FEE, ACCOMODATION, TRANSPORTATION

Changes in the room reservations have to be made before the 6th of August. After this date cancellations may be subject to penalties by the hotels.

Those who still have not paid the registration fee should do it as soon as possible, certainly before the 5th August, otherwise the hotel reservation cannot be guaranteed.

Those who have a flight on Saturday morning from Zurich are recommended to find a hotel in Zurich on Friday evening because the first train from Locarno is arriving at Zurich airport only at 9:13. Hotels can be booked for instance on <http://hotels.zuerich.com/english/>. The train schedule can be found at <http://www.sbb.ch/en/index.htm> or <http://www.irsol.ch/spw5/traintime.htm>.

On Sunday afternoon (Sep 16) the shuttle service from Locarno train station to the conference center will be organized in connection to the trains arriving to Locarno at 13:19, 15:19 and 17:19. The timetable of the shuttle service on Friday afternoon will be announced later.

SOCIAL PROGRAM

Sunday, September 16:

16:00 – 19:00 Registration at the conference centre

18:00 – 19:45 Welcome reception at the conference centre

Monday, September 17:

18:00 Reception offered by the town of Ascona

Tuesday, September 18:

20:30 Concert in the Church Collegio Papio. Trio with piano: Jean Bernard Pommier, piano, Augustin Dumay, violin, Gautier Capuçon, cello.

Beethoven: Sonate für Cello und Klavier Op. 5 Nr. 2

Beethoven: Sonate für Violine und Klavier Op. 47 “Kreutzer”

Brahms: Trio

Tickets are available for prices of 30, 40 and 70 CHF.

Wednesday, September 19:

14:00 – 19:00 Excursions to Valle Verzasca (including a 4.5 km hike) or to Brissago Islands (a boat trip with a guided tour through the botanical garden).

20:30 Public event at the conference centre (in Italian):

Lecture by **E. Landi Degl'Innocenti**: "Influenze astronomiche sul clima terrestre".

Round table discussion with Egidio Landi Degl'Innocenti, Paolo Ambrosetti

(meteorologist) and Franco Romerio (economist). The chair is Marco Cagnotti.

Thursday, September 20:

17:30 Visit to IRSOL

19:30 Conference dinner

The registration for social events will be opened at the Workshop webpage in August and the link will be reported to registered participants in a separate email.

CONTACTS

Solar Polarization Workshop 5

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SPW5 Program

Sunday, September 16

- 16:00 – 19:00 Registration at the conference centre
18:00 – 19:45 Welcome Reception at the conference centre
20:00 Dinner (for those who have full board)
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Monday, September 17

08:00 – 08:45 Registration

08:45 SOC and LOC Welcome notes

09:00 **S.K. Solanki**: Introductory lecture in honor of J.O. Stenflo

Session 1: Second Solar Spectrum
Chair: A. Gandorfer

09:30 **J.O. Stenflo**: The Sun as a Rosetta stone for polarization physics

10:00 **M. Bianda**: Observing programs at IRSOL of the Second Solar Spectrum

10:30 **C.U. Keller**: A brief history of the Second Solar Spectrum

10:45 – 11:15 Coffee break

11:15 **M. Faurobert**: Non-LTE modeling of the Ba II 455,4 nm resonance polarization.

11:30 **R. Ramelli**: Observations of the joint action of the Hanle and Zeeman effects in the D₂ line of Ba II.

11:45 **D.M. Fluri**: Spatial variations of the Hanle effect in the quiet Sun

12:00 **F. Snik**: Design of a Small Synoptic Second Solar Spectrum Telescope (S5T)

12:15 Poster overview

Posters:

R. Manso Sainz: Scattering polarization in the Fe I 6301/6302 lines

J. Trujillo Bueno: The Scattering polarization of the Sr I 4607 Å line at the diffraction limit resolution of a 1-m telescope

A. Lopez Ariste: The turbulent magnetism of the quiet sun from Hanle and Zeeman high resolution observations

F. Paletou: Freeware solutions for spectropolarimetric data reduction

C. Henney: SOLIS Vector Spectromagnetograph: status and science

12:30 – 14:00 Lunch break

Session 2: Polarization physics in magnetized media
Chair: A. Asensio Ramos

- 14:00 **E. Landi Degl'Innocenti**: Radiative transfer for polarized radiation: a historical overview
14:30 **J. Trujillo Bueno**: The magnetic sensitivity of the Second Solar Spectrum
15:00 **H. Frisch**: The Hanle effect. Decomposition of the Stokes parameters in irreducible components
15:15 **M. Sampoorna**: Scattering polarization in the presence of moderately strong solar magnetic fields - the theory of Hanle-Zeeman scattering

15:30 – 16:00 Coffee break

16:00 **R. Holzreuter**: Ca II K polarization as chromospheric temperature and magnetic field sensor
16:15 **L. Belluzzi**: The linear polarization profile of the Li I 6707 Å line as a diagnostic tool of the solar lithium isotopic abundance
16:30 **C. Thalmann**: Laboratory experiment for polarized scattering on potassium atoms under magnetic fields
16:45 **S. Tomczyk**: Laboratory testing of models of scattering polarization
17:00 **E. Suarez**: X-ray polarimetry of solar flares with RHESSI
17:15 Poster overview

Posters:

- OO Yee Yee**: Scattering phase matrices for polarized radiation in the presence of external magnetic fields- the expressions for higher multipoles of scattering
R. Manso Sainz: Self-alignment of atomic hydrogen in the presence of electric fields
A. Lopez Ariste: Spectropolarimetry of resonance polarization of the Na D lines in the laboratory
N. Firstova: Impact linear polarization on impulsive phase of proton flare observations with high spatial resolution
L. Kashapova: The multi-wavelength study of flare 16 August 2004: Why linear polarization was absent in the H-alpha kernel?
W. Hajdas: Atmospheric scattering background in RHESSI measurements of solar flare polarization
J. Hirzberger: Multi-channel observations of a solar flare
C. Sasso: The He I 10830 Å multiplet: analysis of the Stokes vector in a flaring region
L. Merenda: The Cr I 520.6 nm triplet at the solar limb

- 17:30 End of the scientific sessions

18:00 Reception offered by the town of Ascona

19:30 Dinner (for full boarders)

Tuesday, September 18

Session 3: *Nature of solar magnetic fields as revealed by polarimetry*
Chair: *D. Fluri*

09:00 **S.K. Solanki**: Photospheric magnetic fields

09:30 **J. Harvey**: Chromospheric magnetic fields

10:00 **K. Ichimoto**: A new view of fine scale dynamics and magnetism of sunspots revealed by Hinode/SOT

10:15 **B. Lites**: Has Hinode revealed the missing turbulent flux of the quiet Sun?

10:30 **D. Orozco Suárez**: Internetwork magnetic fields observed with Hinode

10:45 – 11:15 Coffee break

11:15 **A. Lagg**: Measurements of canopy fields at chromospheric heights

11:30 **J.C. del Toro Iniesta**: Spectropolarimetry of Evershed clouds and MMFs

11:45 **H. Socas-Navarro**: Can polarimetric observations help resolve the solar oxygen crisis?

12:00 **E. Khomenko**: Observational signatures of numerically simulated MHD wave propagation in small-scale flux tubes

12:15 **L. Yelles Chaouche**: Spectro-polarimetric diagnostics near the solar limb: Simulations versus high-resolution observations

12:30 **D.S. Bloomfield**: The nature of running penumbral waves revealed

12:45 – 14:00 Lunch break

14:00 **R. Rezaei**: Temporal evolution of magnetic elements

14:15 Poster overview

Posters:

Active regions and sunspots:

M. Demidov: An extended line-ratio method application: comparison of large-scale solar magnetic field observations in different spectral lines and observatories

M. Demidov: A study of Stokes line profiles short-period variations in the Sun-as-a-star magnetic field observations

K. Rangarajan: Physical characteristics of bright points

J. Jurcak: Spectropolarimetric observations of the penumbra at 0.3" with Hinode

Xu Zhi: Full vector magnetic field retrieval of an emerging flux region

H. Balthasar: The height dependence of the magnetic vector field in sunspots

J. Borrero: Embedded flux tubes as the origin of net circular polarization and intensity patterns in sunspot penumbrae

Nagaraju Krishnappa: Spectro-polarimetric observation of active regions in H α

M. Gigolashvili: About differential rotation of the large-scale magnetic elements during 1966-1985.

M. Meling: The magnetic vector structure of active region plage fields studied using lines around 1.56 microns

N. Oksay: Spectropolarimetric investigations of the deep photospheric layers of solar magnetic structures

K. Reardon: Spectropolarimetry of Ca II 8542: Probing the chromospheric magnetic field
Network

P. Kobel: Center-to-limb distribution of bright points and faculae: First results of an automated detection algorithm

N.-E. Raouafi: On the latitude distribution of the polar magnetic flux as observed by SOLIS-VSM

C. DeForest: Small-scale magnetic features observed with Hinode

B. Ioshpa: Fine structure stochastic properties of solar magnetic field

Internetwork and the quiet Sun

J. C. Ramirez Velez: Magnetic field strength analysis in quiet sun regions

A. Asensio Ramos: The average magnetic energy in the solar photosphere: a near-IR line of Mn I as a diagnostic tool

M. Martinez Gonzalez: Centre to limb variation of the quiet Sun magnetism

V. Bommier: The internetwork magnetic field at the THEMIS resolution limit

Session 4: Polarized radiative transfer theory and modeling
Chair: F. Paletou

14:30 **K.N. Nagendra:** Numerical methods in polarized line formation theory

15:00 **H. Uitenbroek:** Three-dimensional radiative transfer with polarization

15:30 – 16:00 Coffee break

16:00 **N. Shchukina:** Three-dimensional radiative transfer modeling of the Second Solar Spectrum of titanium

16:15 **A. Asensio Ramos:** Advanced forward modeling and inversion of Stokes profiles caused by the joint action of the Hanle and Zeeman effects

16:30 **T.A. Carroll:** Zeeman tomography of a quiet Sun region

16:45 **N. Piskunov:** Polarization spectral synthesis in 3D

17:00 **D. Mueller:** The multi-component field topology of sunspot penumbrae - A diagnostic tool for spectropolarimetric measurements

17:15 **R. Centeno:** Influence of EUV coronal irradiation on the off-the-limb emission profiles of He I D₃ and 10830 Å lines

17:30 Poster overview

Posters:

J. Stepan: To be given later

R. Manso Sainz: The Hanle effect in stellar atmospheres

L. Leger: 2D radiative modelling of He spectral lines formed in prominences

A. Asensio Ramos: Bayesian inversion of Stokes profiles

C. Fischer: Vector magnetic field inversions of high cadence SOLIS-VSM data

S. Ustyugov: Numerical simulation of local solar supergranulation with magnetic field and realistic physics

D. Orozco Suárez: Diagnostic potential of the Fe I 630.2 nm lines for high-spatial resolution studies of internetwork magnetic fields

S. Criscuoli: Photometric properties of clusters of magnetic elements in the photosphere

Z. Qu: The rotation of the magnetic fields in the evolution of the sunspot
Z. Qu: Relationship between the level population and the magnetic field strength
B. Viticchiè: Mn I lines with hyperfine structure synthesized in realistic quiet Sun magnetic atmospheres

17:45 End of the scientific sessions

18:30 Dinner (for full boarders)

20:30 Concert in the Church Collegio Papio

Wednesday, September 19

Session 5: Molecular polarization and collisional depolarization
Chair: M. Faurobert

09:00 **S.V. Berdyugina:** Advances in molecular spectropolarimetry

09:30 **V. Bommier:** Atomic and molecular depolarizing collision rates

10:00 **A. Shapiro:** Solar magnetic field diagnostics with the molecular Hanle effect

10:15 **N. Afram:** FeH: A valuable magnetic diagnostic tool

10:30 **M. Derouich:** Effect of the anisotropic/isotropic collisions on the scattering polarization

10:45 **J. Dubau:** Atomic depolarization by thermal electron collision: Quantum formulation

11:00 – 11:30 Coffee break

Session 6: Polarimetric instrumentation for ground-based and space observatories
Chair: A. Lopez Ariste

11:30 **C.U. Keller:** Polarimetry from the ground up

12:00 **S. Fineschi:** Space-based solar polarimetry

12:30 – 14:00 Lunch

14:00 – 19:00 Excursions

19:30 Dinner (for full boarders)

20:30 Public event at the conference centre (in Italian):

Lecture by **E. Landi Degl'Innocenti:** "Influenze astronomiche sul clima terrestre".

Round table discussion with Egidio Landi Degl'Innocenti, Paolo Ambrosetti (meteorologist) and Franco Romerio (economist). The chair is Marco Cagnotti.

Thursday, September 20

Session 6 (continued)

- 09:00 **A. Gandorfer:** A proposal for a FUV/EUV spectropolarimeter onboard COMPASS
09:15 **K. Reardon:** Advances in bidimensional spectropolarimetry with IBIS
09:30 **C. DeForest:** Stereoscopic magnetography at the Dunn Solar Telescope
09:45 **D. Gisler:** Advances in the ZIMPOL technology and applications
10:00 Poster overview

Posters:

- A. Tritschler:** Diffraction limited full Stokes spectropolarimetry with the DLSP
Y. Hanaoka: Calibration of the polarimeters with ferroelectric liquid crystals
A. Lopez Ariste: Latest news on THEMIS instrumental improvements for spectropolarimetry
N. Meunier (F. Paletou): The database BASS2000 and THEMIS reduced data
L. Zangrilli: Solar corona observations with the liquid crystal polarimeter - EKPol, during the March 29th, 2006 eclipse
Hagino Masaoki: Comparison of the magnetograms taken with the SFT/MTK and the SST/KSW
M. Derouich: Spatial polarimetry observations with LYOT and coronal magnetic field

10:15 – 10:45 Coffee break

Session 7: Coronal, radio and infrared polarimetry *Chair: C. DeForest (TBC)*

- 10:45 **H. Lin:** Infrared solar polarimetry
11:15 **G. Hurford:** Radio solar polarimetry
11:45 **R. Manso Sainz:** Polarimetry of EUV lines for coronal magnetometry
12:00 **N.-E. Raouafi:** Diagnostics of the solar coronal magnetic field using the Hanle effect: a test using realistic magnetic field configurations
12:15 **S. Giordano:** Coronal magnetic field: Hanle effect observational requirement
12:30 Poster overview

Posters:

- O. Golubchina:** Parameters of prominence radio emission in a wide range of centimetric wavelengths according to the observation of solar eclipse on March 29, 2006
M. Kramar: 3D regularized tomography inversion for the coronal magnetic field from the spectropolarimetric observations of the coronal emission lines.
A. Tlatov: Radio seismology of the Sun on evidence of analysis of the 3-minute oscillations at wavelength 1.76 cm in 1992-2006
A. Tlatov: Reversal of the radio emission polarization in solar cycle
T. Pinter: Green Line Corona Polarization during Total Solar Eclipse on March 29, 2006

V. Popov: On polarization degree of the inner white light corona on March 29, 2006
V. Kuljanishvili: Polarization and physical properties of the June 21, 2006 white-light corona

12:45 – 14:00 Lunch break

Session 8: New telescopes for solar polarimetry
Chair: M. Collados

14:00 **J.R. Kuhn:** ATST: Perspectives for coronal magnetometry

14:30 **O. von der Lühe:** Towards the EST

15:00 **J. Schou:** The Helioseismic and Magnetic Imager

15:15 **J. Arnaud:** The prolate apodized solar coronagraph

15:30 – 16:00 Coffee break

16:00 **M. Sobotka:** Examples of science cases and requirements for EST

16:15 **S.K. Mathew:** A new 0.5 m telescope (MAST) for solar imaging and polarimetry

16:30 **Z. Qu:** The design of polarimeter mounted on Yunnan Solar Tower

16:45 Poster overview

Posters:

S. Gosain: A 2-dimensional scanning solar vector magnetograph at Udaipur Solar Observatory

J. Borrero: 2D full disk polarimetry with the Helioseismic and Magnetic Imager

T. Yamamoto: Universal spectropolarimeter, Norikura Henkou Kansokusouti (NHK)

17:00 End of scientific sessions

17:30 Visit to IRSOL

19:30 Conference dinner

Friday, September 21

Session 9: Stellar magnetic field studies through polarimetry
Chair: S. Marsden

09:00 **G. Mathys:** Large-scale organised magnetic fields on O, B and A stars

09:30 **J.-F. Donati:** Spectropolarimetry of cool stars with magnetic fields

10:00 **G. Wade:** Magnetism in intermediate-mass pre-main sequence stars

10:15 Poster overview

10:30 – 11:00 Coffee break

- 11:00 **J. Landstreet:** Evolution of global stellar magnetic fields in A and B stars
11:15 **S. Bagnulo:** Observations of stellar magnetic fields with FORS1 at the ESO VLT
11:30 **M. Kopf:** A new Zeeman-Doppler imaging code for active late-type stars
11:45 **M. Semel:** ZDI beyond the weak field approximation.
12:00 **J.C. Ramirez Velez:** Polarization technique detection in stellar spectropolarimetry using PCA analysis.

Posters:

- O. Kochukhov:** Magnetic Doppler imaging of active stars
S. Jeffers: Extreme levels of differential rotation on the G0 dwarf HD 171488
M. Kopf: A fast Stokes profile synthesis
S. Marsden: Stellar magnetic fields in swollen convection zones
N. Afram: Magnetic fields on M dwarfs measured with FeH
C. Sennhauser: Zeeman-Doppler imaging of cool stars with atomic and molecular lines

12:15 **S.V. Berdyugina:** Workshop summary

12:30 – 14:00 Lunch

End of the meeting