

DRAFT: September 21, 2012

MONDAY 24 September, 2012

Notice: All presentation slots of 30' and 40' length (except the workshop summary) include 10' of questions

08:40-09:00 Registration in ISSI, Hallerstrasse 6, 1st floor

09:00-09:10 Welcome and Introduction to ISSI

Roger Bonnet

09:10-09:20 Introduction to the Workshop

Len Culhane

Session 1 Introduction

Chairman: Markus Roth

09:20-10:00 Insights from Helioseismology to the Dynamics of the Sun

Douglas Gough

Session 2 Understanding solar abundances and the structure and microphysics of the solar interior

10:00-10:30 The Solar Mixture: from High Z to Low Z

Nicolas Grevesse

10:30-11:00 Helioseismic Inferences about the Sun's Internal Abundances and Equation of State

Sarbani Basu

11:00-11:20 Coffee break

11:20-11:50 Helioseismic Inferences about Nuclear Reaction Rates, the Solar Core, and Energy Transfer

Sylvaine Turck-Chieze

11:50-12:20 Secular transport processes in the radiation zone

Stephane Mathis

12:20-14:00 Lunch

Session 3 Understanding solar dynamics, rotation, convection and overshoot

Chairman: Sarbani Basu

14:00-14:30 Helioseismology of Solar Rotation

Michael Thompson

14:30-15:00 Solar Convection and Mean Flows

Mark Miesch

15:00-15:30 Helioseismology of Solar Convection

Shravan Hanasoge

15:30-15:50 Coffee break

15:50-16:20 Helioseismology of Solar Meridional Flow

Jesper Schou

16:20-16:50 Magnetoconvection and surface magnetism

Manfred Schüssler

16:50-17:30 Discussion

Led by: Michael Thompson

17:30 Welcome reception

TUESDAY 25 September, 2012

Session 4 Understanding solar magnetism and the 11-year cycle

Chairman: Sacha Brun

9:00-9:30 Variability in the Sun: Torsional Oscillations and the Solar Constant

Henk Spruit

9:30-10:00 2-D Mean Field Solar Dynamo: Current Status and Challenges

Mausumi Dikpati

10:00-10:30 3-D Global Models of the Solar Dynamo

Matt Browning

10:30-11:00 *Coffee break*

Session 5 The importance of long-term synoptic observations

11:00-11:30 Results of Long-term Synoptic Observations

Yvonne Elsworth

11:30-12:00 Observational Systems in the Past, Present, and Future

Frank Hill

12:00-14:00 *Lunch*

Session 6 Sub-photosphere to solar atmosphere connection

Chairman: Len Culhane

14:00-14:30 Subsurface Flows and their Role in Solar Magnetic Activity

Rudi Komm

14:30-15:00 Emergence of Magnetic Flux Tubes and the Formation of the Coronal Magnetic Field

Yuhong Fan

15:00-15:30 Energy Flow and the Role of Waves in the Solar Atmosphere

Ineke de Moortel

15:30-15:50 *Coffee break*

15:50-16:20 Wave propagation and mode coupling in the Sun's magnetic network

Oskar Steiner

Young scientist presentations

16:20-16:35 Implications of the Magnetic Topology for the Solar Tachocline Confinement

Antoine Strugarek

16:35-16:50 Parity of solar global magnetic field in 2D flux-transport dynamo

Hideyuki Hotta

16:50-17:05 Helioseismic Investigation of Emerging Magnetic Flux in the Solar Convection Zone

Stathis Ilonidis

17:05-17:40 Discussion

Led by: Juri Toomre

WEDNESDAY 26 September, 2012

Session 7 Computational helioseismology – forward and inverse problems

Chairman: Yvonne Elsworth

9:00-9:30 Computational Time-Distance Helioseismology [Aaron Birch](#)

Session 8 New data analysis techniques and data assimilation

9:30-10:00 New Local Helioseismology Techniques [Tom Duvall](#)

10:00-10:30 New Global Helioseismology Techniques [Sergei Vorontsov](#)

10:30-11:00 *Coffee break*

11:00-11:30 Data Assimilation Applied to Solar Physics [Laurène Jouve](#)

11:30-12:00 Discussion

12:00-14:00 *Lunch*

Social activity

14:00 Free time to visit the attractions of Bern (i.e. Historical Museum...)

19:00 **Dinner at the Restaurant Zunft zu Webern**

THURSDAY 27 September, 2012

Session 9 New observational techniques

Chairman: Frank Hill

9:00-9:30	Multi-line Observations for Solar Seismology
9:30-10:00	Helioseismology with Observations at Higher Spatial Resolution

Stuart Jefferies

Markus Roth

Session 10 Helioseismology with Solar Orbiter

10:00-10:30	<i>Helioseismology with Solar Orbiter</i>
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Laurent Gizon

10:30-11:00 *Coffee break*

Session 11 Future mission concepts for helioseismology

11:00-11:30	NASA/ESA Future Programs
11:30-12:00	Solar C/D
12:00-12:20	GOLD and different concepts for a future solar mission

Bernhard Fleck

Takashi Sekii

Sylvaine Turck-Chieze

12:20-14:00 *Lunch*

Session 12 The solar-stellar connection

Chairman: Laurent Gizon

14:00-14:30	Oscillation Characteristics and 1-D Models of Solar-like Stars
14:30-15:00	Determination of Stellar Rotation and Magnetism via Asteroseismology with Corot and Kepler

Guenter Houdek

Rafael Garcia

15:00-15:30 *Coffee break*

Young scientist presentations

15:30-15:45	Cross-spectral Analysis of Global Oscillation Time Series
15:45-16:00	Synthetic helioseismic data for Solar Orbiter

Ariane Schad

Björn Löptien

16:00-17:00 Discussion

Led by: Douglas Gough

FRIDAY 28 September, 2012

Session 12 The solar-stellar connection (continued)

Chairman: Takashi Sekii

9:00-9:30	3-D Global Models of Stellar Rotation and Dynamos	Sacha Brun
9:30-10:00	2-D Models of Stellar Dynamos and the Rotation-activity Relationship	Dibyendu Nandi (Skype)
10:00-10:30	Angular Momentum Evolution of Low Mass Stars	Marc Pinsonneault
<i>10:30-11:00 Coffee break</i>		
11:00-11:30	Discussion: book structure and writing tasks	Len Culhane
11:30-12:00	Future Perspectives and Challenges	Juri Toomre
12:00-12:10	Closing remarks	Michael Thompson
End of Workshop		
<i>12:30-14:00 Lunch</i>		
14:00-15:00	Conveners meeting	