

WholeSun project Kick-Off Meeting 27-29th May 2019

Venue: Departement of Astrophysics of CEA Paris-Saclay, Bat. 709 at Orme des Merisiers site. URL: <http://irfu.cea.fr/dap/>

Monday 27th:

9:00-10:00 Welcome coffee

10:00-10:10 Short presentation of the Whole Sun project and details on kick-off program and goals

10:10-12:10 Discussions/contributions around WP1 Dynamo/Convection (spot dynamo paradox and convection conundrum) (Chairman Laurent Gizon)

- 10:10-10:30 Laurent Gizon (MPS) Introduction (incl. helioseismology)
- 10:30-10:50 Aaron Birch (MPS) -- convective conundrum: update
- 10:50-11:10 Robert Cameron (MPS) -- ingredients for the solar dynamo
- 11:10-11:30 Hideyuki Hotta (Chiba Univ.) -- R2D2 simulation: concept and latest result
- 11:30-11:50 Antoine Strugarek (CEA) -- high resolution numerical simulation of global solar convection
- 11:50-12:10 Vincent Boening (MPS) -- Helioseismic applications

12:10-13:50 Lunch break

13:50-15:40 Discussions/contributions around WP2 Flux emergence on all scales (Chairman Vasilis Archontis)

- 13:50-14:10 Introduction by Vasilis Archontis (St Andrews)
- 14:10-14:25 Robert Cameron (MPS) -- contribution to the introduction (where does flux come from?)
- 14:25-14:40 Aaron Birch (MPS) -- Constraints on flux emergence from surface flows and simulations
- 14:40-15:00 Fernando Moreno-Insertis (IAC) -- Small-scale magnetic flux emergence: arches and sheets within granules
- 15:00-15:15 Petros Syntelis (St Andrews) -- Idealized simulations of flux tube emergence from 20Mm
- 15:15-15:30 Allan Sacha Brun (CEA) -- On the possible origin of the complexity of Active Regions

15:30-16:00 Coffee break

16:00-18:00 Discussions/contributions around WP3 Eruptivity of AR and smaller solar features (jets) (Chairman Fernando Moreno-Insertis)

- 16:00-16:20 Fernando Moreno-Insertis (IAC) -- Mini-filament eruptions and jets: numerical model + Introduction
- 16:20-16:40 Alan Hood (St Andrews) -- solar eruptions: flux emergence and magnetofrictional coupling
- 16:40-16:55 Petros Syntelis (St Andrews) -- Jets and eruptions in emerging flux simulations
- 16:55-17:15 Chris Goddard (MPS) -- coronal seismology
- 17:15-17:30 Manuel Luna (IAC) -- Numerical Simulations of Jets in Filament Channel Structures
- 17:30-17:45 Krzysztof Barczynski (LESIA) -- Flare reconnection driven magnetic field and Lorentz force variations at the Sun's surface
- 17:45-18:00 Daniel Nobrega Siverio (Oslo) -- Surges: a missing piece in the solar atmosphere puzzle.

Tuesday 28th:

9:00-11:35 Discussions/contributions around WP4 Heating/Energy budget from inner to outer layers (Chairman Mats Carlsson)

- 9:00-9:15 Mats Carlsson (Oslo) -- Introduction + remarks
- 9:15-9:30 Daniel Nobrega Siverio (Oslo) -- Unraveling the heating in the chromosphere: nonequilibrium and partial ionization effects
- 9:30-9:50 Elena Khomenko (IAC) -- Magnetoconvection simulations with the Mancha code
- 9:50-10:05 Manuel Collados (IAC) -- What synergetic effects can be expected from the most advanced numerical simulations and the most powerful high-resolution observational capabilities?
- 10:05-10:20 Rui Pinto (IRAP) -- Multi-VP framework for solar corona and wind simulations
- 10:20-10:35 Soumitra Hazra (CEA) -- Role of heating on wind velocity and temperature profiles

10:35-11:00 Coffee break

- 11:00-11:20 Viggo Hansteen (Oslo) -- Flux emergence, EBs and UV bursts and the formation of the AR chromosphere and corona
- 11:20-11:35 Barbara Perri (CEA) -- Coupling the solar dynamo to solar wind

11:35-14:40 Discussions/contributions around WP5 Solar-Stellar connection (how various global stellar parameters impacts activity/dynamics) (Chairman Allan Sacha Brun)

- 11:35-11:45 Allan Sacha Brun (CEA) -- Introduction
- 11:45-12:00 Laurent Gizon (MPS) -- contribution to the introduction (stellar observations)
- 12:00-12:15 Yuto Bekki (MPS) -- Effects of rotation on convection

12:15-14:00 Lunch break + Leaders board meeting

- 14:00-14:20 Laurene Jouve (IRAP) -- Coupling surface flux transport models and wind simulations
- 14:20-14:40 Antoine Strugarek (CEA) -- Cyclic dynamo action in solar-type stars: what is the current status?

14:40-17:30 Discussions/contributions around WPX : building an exa-scale era global solar code (Chairman Allan Sacha Brun & Pierre Kestener)

- 14:40-14:50 Allan Sacha Brun (CEA) – introduction and Lessons from ASH
- 14:50-15:05 Pierre Kestener (CEA) – introduction + ppkMHD, kokkos library and scalability
- 15:05-15:20 Friedrich Kupka (MPS) -- Lessons from ANTARES
- 15:20- 15:35 Robert Cameron (MPS) -- Lessons from MURaM

15:35-16:00 Coffee Break

- 16:00-16:25 Chunlei Liang (Georgia Univ.) -- Chorus code and spectral difference methods (**Remotely from USA**)
- 16:25-16:45 Hideyuki Hotta (Chiba Univ.) -- Development of R2D2 code
- 16:45-17:00 Mats Carlsson (Oslo) -- Bifrost solar physics modules
- 17:00-17:15 Mikolaj Szydlarski (Oslo) -- Preparing Bifrost for Exascale. What we've learned so far.
- 17:15-17:35 Andrius Popovas (Oslo) -- The DISPATCH framework for multi-solver-multi-physics applications

17:35-18:00 Wrap up of the first 2 days and choice of splinters for Wednesday

20:30 - Social event: dinner in Paris

Wednesday 29th:

9:00- 12:30 Splinters (coffee always available) - 3 splinters for instance: WPX, WP1+WP4+WP5 and WP2+WP3
We will see on Tuesday afternoon how we organise the splinter. Likely WPX will run for the whole morning and the 2 blocks of solar physics WP will follow one another.

12:30-14:00 Lunch Break

14:00-15:30 Discussion, next meetings, Task forces

15:30 adjourn