1 Title of the workshop

MAGNETOHYDRODYNAMICS: Classical physics for the 21st century

2 Program

- Monday:
  09.00-10.00: Arrival and registration
  10.00-10.20: Welcome from the Lorentz Centre representatives, announcements from organizing committee (Rony/Stefaan)
  10.20-11.00: Opening tutorial lecture: MHD waves in flowing media
  11.00-11.20: Open discussion (hybrid) on role of MHD spectroscopy
  11.20-12.00: Demonstration LEGOLAS for MHD wave spectroscopy:
  12.00-14.00: lunch break
  14.00-15.00: Hands-on experimenting with Legolas for MHD spectroscopy
  15.00-15.05: welcome to US-based participants, morning summary (Rony)
  15.05-15.45: invited (online) keynote
  15.45-16.00: online discussion round on waves in plasmas
  16.00-16.30: coffee break
  16.30-17.00: Sollicited contribution waves in self-gravitating media:
  17.00-17.30: Sollicited contribution MHD modes in tokamaks:
  17.30-18.00: Hybrid discussion forum: moderators Rony Keppens and Andrew Hillier
  18.00-19.00: welcoming reception
- Tuesday:

  THEME 2: Controlling plasmas: from space weather to the laboratory

  09.00-9.45: Invited talk on *Modern space weather frameworks and forecasting*:
  Gabor Toth

  09.45-10.30: Invited presentation on *space weather model aspects (AWSOM)*:
  Bart van der Holst

  10.30-10.45: Open discussion on space weather efforts (Stefaan)

  10.45-11.15: coffee break

  11.15-12.15: contributed (online) presentation on *European space weather models*:
  Christine Verbeke & Jens Pomoell

  12.15-14.30: lunch break, followed by free discussion/worktime

  14.30-15.00: contributed (online) talk *aspects beyond ideal MHD*:
  Ben Snow

  15.00-15.40: Invited (online) keynote:
  *SPARC - the Bullet Train to Fusion Power*:
  Jeffrey Freidberg

  15.40-16.00: online discussions with Freidberg and all participants
  Moderator: Jack Jenkins

  16.00-16.30: Coffee break

  16.30-17.00: Contributed (online) talk on
  *Two-fluid numerical simulations of a partially-ionized solar atmosphere*:
  Kris Murawski

  17.00-18.00: *Open (hybrid) discussion forum*:
  moderators Stefaan Poedts & Kris Murawski
  Structured by 10 questions posed by moderators.
Wednesday:

**THEME 3: From solar to astrophysical applications**

09.00-9.45: Invited (online) talk on *solar multi-fluid models:*

Elena Komenkho

09.45-10.15: Contributed (online) talk on *Astrophysical applications:*

Sven van Loo

10.15-10.45: Solicited (online) contribution

*Plasmoid Chains: a route to achieving explosive and fast magnetic reconnection*

Hubert Baty

10.45-11.15: coffee break

11.15-12.00: contributed talk on *computational aspects for multi-fluid:*

Beatrice Popescu

12.00-14.00: lunch break

14.00-15.00: Parallel onsite open discussion round

identification of common challenges and goals.

Divide the participants in 4 groups, mixing various disciplines.

Summaries made by Niels/Jack/Adam/Sebastiaan

15.00-15.30: coffee break

15.30-16.15: Invited (online) contribution on

*An Introduction to Topological Waves in Fluids, MHD and Plasmas*

Steve Tobias

16.15-17.00: Invited (online) contribution on *micro-macro-couplings*

Fabio Bacchini

17.00-17.45: Contributed (online) presentation on *PIC-MHD coupling:*

Fabien Casse

17.45-18.00: Discussion on MHD+kinetic/particle coupling aspects

Moderator: Hans Goedbloed

18.00-....?: Free time followed by Conference dinner
Thursday:

THEME 4: Plasmas, waves and turbulence

09.00-9.45: Invited keynote: whole solar modeling:
Sacha Brun

09.45-10.30: Contributed talk on stellar wind models:
Victor Reville

10.30-10.45: open discussion: parallel solar/stellar, status whole sun models
Moderator: Stefaan Poedts

10.45-11.15: coffee break

11.15-12.00: contributed (online) talk on
Magnetofrictional modelling of the solar corona
Anthony Yeates

12.00-12.15: Open Discussion, moderator: Rony Keppens

12.15-14.00: lunch break

14.00-14.45: Invited (online) presentation on MHD & turbulence:
Alexander Schekochihin

14.45-15.30: Invited (online) contribution: MHD turbulence theory:
Sebastien Galtier

15.30-16.00: coffee break

16.00-17.00: Hands-on session with BxC tool
Jean-Baptiste Durrive & Mathieu Langer

17.00-18.00: Open hybrid discussion forum:
moderators Hans Goedbloed and Bart van der Holst
Structured by 10 + 10 questions from moderators.
Friday:

THEME 5: Extreme astrophysical applications

09.00-9.45: Contributed presentation on GRMHD applications:
Oliver Porth

9.45-10.30: Invited presentation on GRMHD:
Hector Olivares

10.30-11.00: open discussion: status GRMHD modeling
moderators Oliver Porth and Rony Keppens

11.00-11.30: coffee break

11.30-12.15: Invited presentation on
The nature of the intense dissipation structures in MHD turbulence
Pierre Lesaffre

Start with summaries by Sebastiaan, Jack, Niels, Adam.
Identify 10 avenues for concrete joint future work.