# “MHD Coronal Seismology 2020: Twenty Years of Probing the Sun’s Corona with MHD Waves”

The conference will be run through Zoom. Please email SOC for the link.

Please make sure you use the most recent version of Zoom.

During the breaks, the participants are encouraged to have informal chats/discussions through the five breakout Rooms in Zoom (see a quick manual on how these virtual rooms can be accessed directly from the main meeting attached to the schedule below). This opportunity is intended to compensate the lack of informal communications that we usually have at real conferences. We deliberately do not assign those Rooms with specific topics for discussion, which will be generated automatically when people enter in, or, alternatively, could be proposed in the chat during the session. For example, any participant may post in the chat: “During the next break, I suggest to discuss the upcoming funding opportunities in Room 1. Please join who’s interested”. In other words, during the breaks having their coffee/sandwich aside, people could join one of those five Rooms to see what discussion is going there, join it, or leave for another chat Room or the main meeting.

All the talks are scheduled to be oral, with 20 min for presentation + 5 min for discussion (for invited talks) and 15 min for presentation + 5 min for discussion (for contributed talks).

To avoid too much distraction during the talks, we ask the participants to type their questions in through the chat in Zoom, which will be addressed by the speaker after the talk. Also, if time allows, we might have one or two questions asked verbally after the talk.

If you have any difficulties on the day of your presentation (especially in the technological sense affecting your ability to present), please contact us as soon as you can so that we can make a decision on changing the order of speakers to ensure smooth running. Moreover, we would like to request the speakers to attend the whole section that has their talk and be on standby in case we will need to change the order of talks.

The timetable below is given in the GMT format.

# Programme

**8 December, Tuesday**

**9:00 – 9:10 Welcome from SOC**
**9:10 – 9:35 Opening talk:** *MHD waves in the solar corona: highlights of observations and modeling in the past two decades (Invited)*, **Leon Ofman**, CUA and NASA-Goddard Space Flight Center, USA, GMT +2

**Decaying kink and sausage oscillations and waves in the corona**
**Chair:** Dmitrii Kolotkov

**9:35 – 10:00** *Sausage oscillations in coronal flux tubes with localized magnetic twist (Invited)*, **Igor Lopin**, Institute of Applied Astronomy of RAS, Russia, GMT+10
**10:00 – 10:20** *Coronal seismology with propagating kink waves (Contributed)*, **Richard Morton**, Northumbria University, UK, GMT
**10:20 – 10:45** *Mapping the global magnetic field in the solar corona through magnetoseismology (Invited)*, **Hui Tian**, Peking University, China, GMT +8
**10:45 – 11:05** *Kink oscillations in coronal loops with elliptical cross-sections (Contributed)*, **Mingzhe Guo**, Shandong University, Weihai, China, GMT +8
**11:05 – 11:30** *Resonant absorption: Compression and vorticity (Invited)*, **Marcel Goossens**, KU Leuven, Belgium, GMT +1, *suppl. video*

*15-min break & informal chat through the breakout rooms*

**Decayless kink oscillations of coronal loops**
**Chair:** Bo Li

**11:45 – 12:10** *Transverse oscillations of coronal loops induced by circular-ribbon flares and the related jets (Invited)*, **Qingmin Zhang**, Purple Mountain Observatory CAS, China, GMT+8, *suppl. video 1*, *suppl. video 2*, *suppl. video 3*
**12:10 – 12:35** *Excitation of decayless kink oscillations by random motion (Invited)*, **Michael Ruderman**, University of Sheffield, UK, GMT
**12:35 – 12:55** *Generating decay-less loop oscillations via self-oscillatory processes (Contributed)*, **Konstantinos Karampelas**, Northumbria University, UK, GMT
**12:55 – 13:15** *Excitation of decay-less transverse oscillations of coronal loops by random motions (Contributed)*, **Andrey Afanasyev**, LASP, University of Colorado Boulder, USA, GMT -7

*30-min break & informal chat through the breakout rooms*

**Coronal heating and implications of thermodynamic activity of the corona for MHD waves**
**Chair:** Giuseppe Nistico

**13:45 – 14:10** *Aspects of MHD wave heating in the complex solar atmosphere (Invited)*, **Ineke De Moortel**, University of St Andrews, UK, GMT

**14:10 – 14:35** *Evolution of coupled slow magnetoacoustic and entropy waves in a plasma with heating/cooling misbalance (Invited)*, **Dmitrii Zavershinskii**, Samara National Research University and Lebedev Physical Institute, Russia, GMT +4

**14:35 – 14:55** *Will it rain in this loop? The role of asymmetries in coronal rain formation during thermal non-equilibrium cycles (Contributed)*, **Gabriel Pelouze**, KU Leuven, Belgium, GMT +1

**14:55 – 15:15** *Generation of solar spicules and subsequent atmospheric heating (Contributed)*, **Tanmoy Samanta**, NASA Marshall Space Flight Center, USA, GMT -6

*30-min informal chat through the breakout rooms*

**9 December, Wednesday**

**Nonlinear effects of coronal MHD waves: observational manifestations and theoretical modelling**
**Chair:** Dmitrii Kolotkov

**9:00 – 9:25** *The role of nonlinear forces on the propagation of torsional polarized waves in the solar atmosphere (Invited)*, **Soheil Vasheghani Farahani**, Tafresh University, Iran, GMT +3:30

**9:25 – 9:50** *Nonlinear effects of kink MHD waves in coronal loops: observations and modelling (Invited)*, **Norbert Magyar**, University of Warwick, UK, GMT

**9:50 – 10:15** *On the lookout for TWIKH rolls in the solar atmosphere with the help of forward modelling (Invited)*, **Patrick Antolin**, Northumbria University, UK, GMT

**10:15 – 10:35** *Properties of Uniturbulence (Contributed)*, **Rajab Ismayilli**, KU Leuven, Belgium, GMT +1

**Coronal MHD waves and magnetic reconnection in the solar atmosphere**
**Chair:** David Tsiklauri

**10:35 – 11:00** *MHD wave propagation in the neighbourhood of coronal null points (Invited)*, **James McLaughlin**, Northumbria University, UK, GMT

**11:00 – 11:20** *MHD waves behaviour around a magnetic null point (Contributed)*, **Somaye Sabri**, The University of Tabriz, Iran, GMT +3:30, *suppl. video 1*, *suppl. video 2*, *suppl. video 3*

*15-min break & informal chat through the breakout rooms*

**MHD waves in a lower solar atmosphere**
**Chair**: Bo Li

**11:35 – 12:00** *Seismology of sunspot umbrae and bright points in the photosphere based on the theory of slow magnetoacoustic waves (Invited)*, **Il-Hyun Cho**, Kyung-Hee University, South Korea, GMT +9

**12:00 – 12:20** *Possible evidence of sausage waves associated with photospheric bright points (Contributed)*, **Yuhang Gao**, Peking University, China, GMT +8

**12:20 – 12:40** *Oscillation Dynamics in Short-Lived Faculae during Their Lifetime (Contributed)*, **Andrei Chelpanov**, Institute of Solar-Terrestrial Physics, Irkutsk, Russia, GMT +8

**12:40 – 13:00** *Waves propagation above a plage as observed by IRIS and SDO (Contributed)*, **Pradeep Kumar Kayshap**, Vellore Institute of Technology, Bhopal University, India, GMT +5:30

*30-min break & informal chat through the breakout rooms*

**13:30 – 13:50** *Effect of Electrical Resistivity on the Damping of Slow Sausage Modes (Contributed)*, **Michaël Geeraerts**, KU Leuven, Belgium, GMT +1

**13:50 – 14:10** *FIP and Inverse FIP Effects in Solar Flares (Contributed)*, **Martin Laming**, Naval Research Laboratory, USA, GMT -5

**14:10 – 14:35** *Influence of waveguide cross-sectional shape on the spatial structure of MHD wave modes (Invited)*, **Gary Verth**, University of Sheffield, UK, GMT

*30-min informal chat through the breakout rooms*

**10 December, Thursday**

**MHD waves in open coronal structures and global wave phenomena**
**Chair:** Tom Van Doorsselaere

**9:00 – 9:25** *MHD Waves in open coronal structures (Invited)*, **Dipankar Banerjee**, Aryabhatta Research Institute of Observational Sciences, India, GMT +5:30

**9:25 – 9:50** *Observations of small and large scale MHD waves from Polar Coronal Hole (Invited)*, **Kyungsuk Cho**, Korea Astronomy and Space Science Institute, South Korea, GMT +9

**9:50 – 10:15** *Diagnostics of flare core region by propagating fast mode waves (Invited)*, **Ding Yuan**, Harbin Institute of Technology, Shenzhen, China, GMT +8

**10:15 – 10:35** *Diagnostics of a Solar Flaring Region by Bidirectional Quasi-Periodic Propagating Fast Magnetosonic Waves (Contributed)*, **Yuhu Miao**, Harbin Institute of Technology, Shenzhen, China, GMT+8

**10:35 – 11:00** *Instability of triangular jets in the solar atmosphere (Invited)*, **Teimuraz Zaqarashvili**, University of Graz, Austria, GMT +1

**11:00 – 11:20** *Capability of a coronal mass ejection (CME) scenario to drive a Moreton wave (Contributed)*, **Mariana Cécere**, Instituto de Astronomía Teórica y Experimental (CONICET/UNC), Observatorio Astronómico de Córdoba (UNC), Argentina, GMT -3

**11:20 – 11:45** *Generation mechanisms of low-frequency waves in the solar corona (Invited),* **Yuandeng Shen**, Yunnan Observatories, China, GMT +8

*15-min break & informal chat through the breakout rooms*

**Oscillations in coronal filaments and prominences**
**Chair:** Sergey Anfinogentov

**12:00 – 12:20** *Confined jets in a filament-channel and its interaction with a prominence: large-amplitude oscillations (Contributed)*, **Manuel Luna**, Universitat de les Illes Balears, Spain, GMT+1

**12:20 – 12:40** *Simultaneous longitudinal and transverse oscillations in filament threads after a failed eruption (Contributed)*, **Rakesh Mazumder**, Indian Institute of Astrophysics, Bangalore, India, GMT+5:30

*30-min break & informal chat through the breakout rooms*

**Slow magnetoacoustic waves in coronal loops**
**Chair:** Sergey Anfinogentov

**13:10 – 13:35** *Topics on active region oscillations (Invited)*, **Andrea Costa**, IATE-CONICET, Argentina, GMT -3

**13:35 - 14:00** *Determination of transport coefficients by coronal seismology of slow-mode waves observed with SDO/AIA (Invited)*, **Tongjiang Wang**, CUA and NASA-Goddard Space Flight Center, USA, GMT -4, *suppl. video 1*, *suppl. video 2*

**14:00 – 14:20** *Compressive oscillations in hot coronal loops (Contributed)*, **Krishna Prasad Sayamanthula**, KU Leuven, Belgium, GMT +1

**14:20 – 14:40** *Observations of slow modes above a sunspot: multi-thermal structuring of a coronal loop? (Contributed)*, **Timothy Duckenfield**, KU Leuven, Belgium, GMT

**14:40 – 15:00** *Evidence of a periodic propagating signal in an active region (Contributed)*, **María Valeria Sieyra**, UTN-FRM, CONICET, Argentina & KU Leuven, Belgium, GMT -3

*30-min informal chat through the breakout rooms*

**11 December, Friday**

**Novel techniques and approaches in coronal seismology**
**Chair:** Giuseppe Nistico and Dmitrii Kolotkov

**9:00 – 9:20** *Studying Vertical Wave Propagation Using the P-modes Modulated by Flares (Contributed)*, **Andrei Chelpanov**, Institute of Solar-Terrestrial Physics, Irkutsk, Russia, GMT +8

**9:20 – 9:40** *A novel approach to calculation of the magnetized plasma dispersion relation (Contributed)*, **Vladimir Annenkov**, Budker Institute of Nuclear Physics, Novosibirsk, Russia, GMT +7, *suppl. video*

**9:40 – 10:05** *Modern Diagnostic Techniques for the Solar Corona (Invited)*, **David Pascoe**, KU Leuven, Belgium, GMT +1

**10:05 – 10:25** *Legolas - Opening the door to modern MHD spectroscopy (Contributed)*, **Niels Claes**, KU Leuven, Belgium, GMT +1

**10:25 – 10:50** *Solar coronal loop oscillations: The Fast MHD wave perspective (Invited)*, **Rekha Jain**, University of Sheffield, UK, GMT

**10:50 – 11:10** *Putting MHD waves in context: the full ion-electron wave diagrams (Contributed)*, **Rony Keppens**, KU Leuven, Belgium, GMT +1

**General news advertisement**

**11:10 – 11:15** *Topical Collection of Solar Physics on "Magnetohydrodynamic (MHD) Waves and Oscillations in the Sun's Corona and MHD Coronal Seismology"*, **Dmitrii Kolotkov (on behalf of the Editorial Board)**, University of Warwick, UK, GMT
**11:15 – 11:30** *New observational capabilities for studying quasi-periodic pulsations with the Siberian Radioheliograph,* **Sergey Anfinogentov**, Institute of Solar-Terrestrial Physics, Russia, GMT +8

*30-min break & informal chat through the breakout rooms*

**Multi-wavelength observations (from radio to gamma-rays) and modelling of quasi-periodic pulsations in solar and stellar flares**
**Chair:** David Tsiklauri

**12:00 – 12:25** *On probing the solar and stellar atmospheres by magnetohydrodynamic (MHD) waves (Invited)*, **Abhishek Kumar Srivastava**, Indian Institute of Technology BHU, India, GMT +5:30
**12:25 – 12:45** *Features and mechanism of the 4-8 GHz emission of weak solar flares (Contributed)*, **Maria Toropova**, Institute of Solar-Terrestrial Physics, Russia, GMT +8
**12:45 – 13:10** *Quasi-periodic pulsations in circular ribbon flare on 5 March 2014 (Invited)*, **Elena Kupriyanova**, Pulkovo Observatory of RAS, Russia, GMT +3
**13:10 – 13:35** *Inexplicit quasi-periodic pulsations during a triple-ribbon solar flare (Invited)*, **Ivan Zimovets**, Space Research Institute IKI of RAS, Russia, GMT +3
**13:35 – 14:00** *Quasi-periodic pulsations in flares: A tool to study the solar-stellar connection (Invited)*, **Anne-Marie Broomhall**, University of Warwick, UK, GMT
**14:00 – 14:25** *New insights into quasi-periodic pulsations in solar and stellar flares from recent statistical surveys (Invited)*, **Andrew Inglis**, NASA-Goddard Space Flight Center, USA, GMT -4

**14:25 – 14:50** *Concluding talk and future perspectives: Valery Nakariakov*, University of Warwick, UK, GMT

*30-min informal discussion through the breakout rooms*

End of the conference

*Being connected to the main meeting, follow the steps summarised below to get connected to the breakout Rooms for informal chats/discussions apart from the conference talks.*

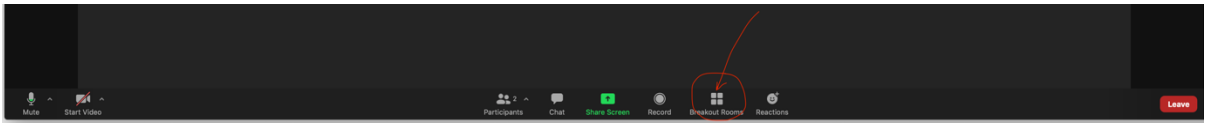
# Brief guide of Breakout Rooms in Zoom[1]

Zoom can breakout the participants of the main session into separate “Breakout rooms”. All the breakout rooms belong to the main session. Participants can freely join one of the breakout rooms from the main session, and vice versa.

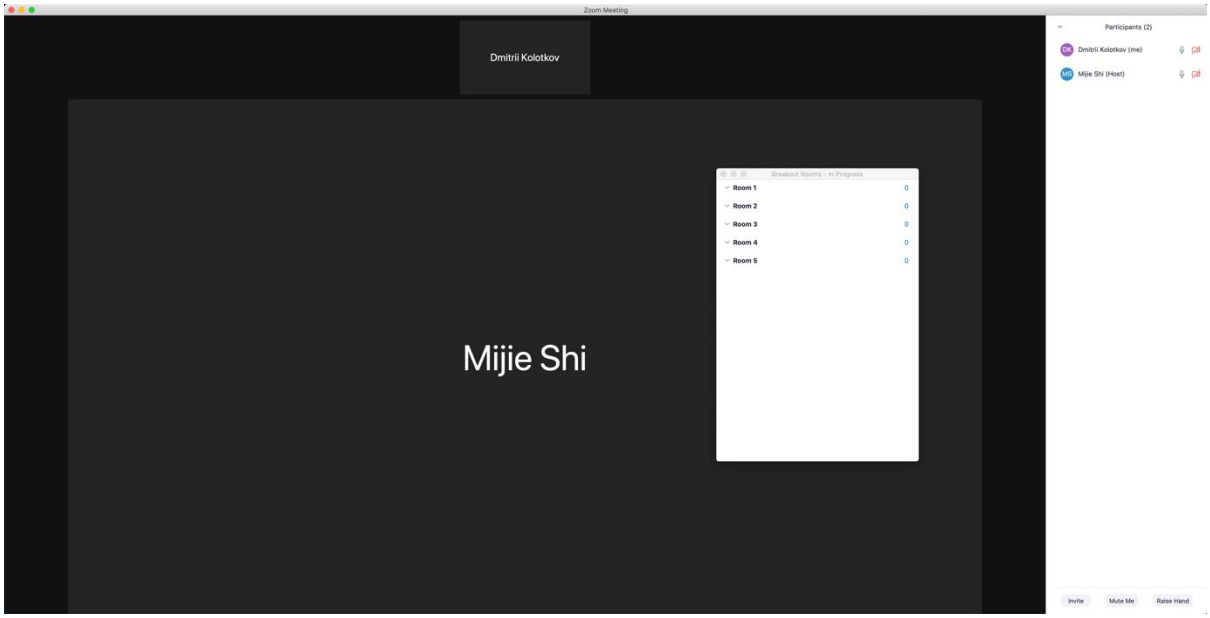
The host will open 5 breakout Rooms during the coffee/lunch break and also at the end of each conference day. Participants can choose to join one of these 5 breakout Rooms or switch from one to another. Participants can leave the breakout rooms anytime they want or choose to stay in the main session.

Below is a brief demo:

1. Please update you Zoom to the most recent version.
2. After the host open breakout Rooms, participants can find a “Breakout Rooms” icon in the bottom panel of their Zoom windows.

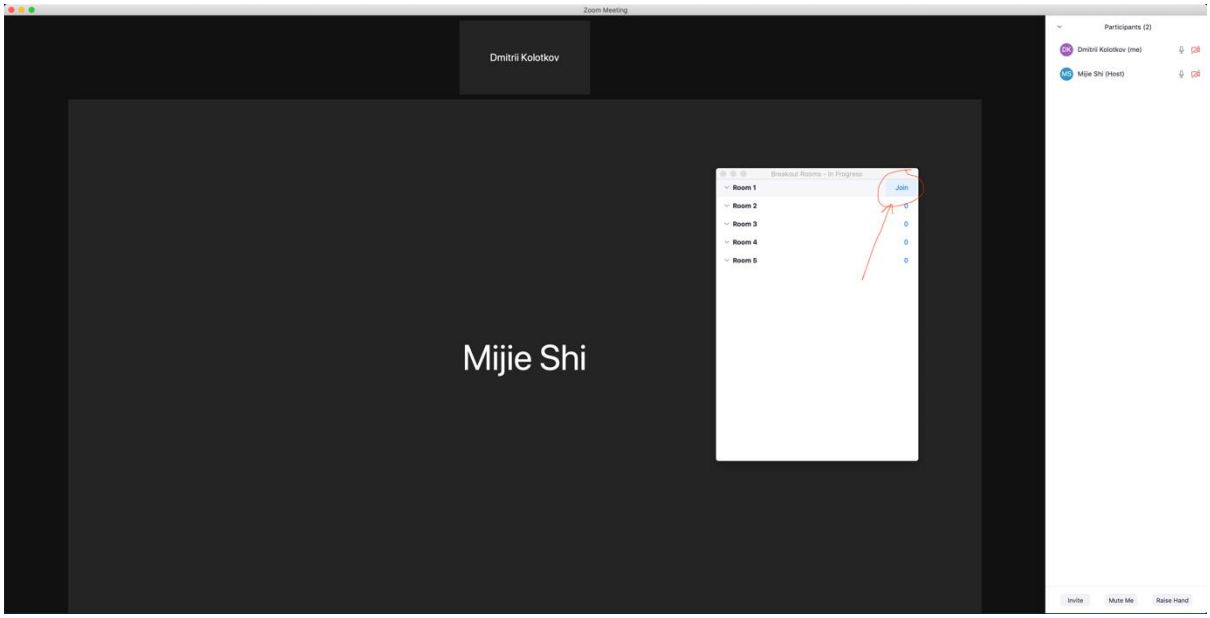



3. Click “Breakout Rooms”, you will find 5 rooms. Swipe your cursor over the number against each Room (“0” in the screenshot below) to see the option to join it.




4. Click “Join” to join the Room.

[1] For more details, please see: https://support.zoom.us/hc/en-us/articles/115005769646




5. Leave the breakout Room and return to the main session.