

BUKS 2018

WORKSHOP

Tenerife, Spain, 3-7 September

**Waves and
instabilities in the
Solar
Atmosphere**

Confronting the current state-of-the-art

Science Programme



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**EXCELENCIA
SEVERO
OCHOA**



BUKS 2018

Oral Programme

Tuesday September 4

08.50 - 09.00 Welcome address (*Manuel Luna and Iñigo Arregui*)

Session 1

Chair: *Ineke De Moortel*

09.00 - 09.40 Waves, oscillations, and instabilities in the solar atmosphere: theory

Invited Review *Michael Ruderman*

09.40 - 10.00 How much can the damping of the observed power spectrum of transverse waves contribute to coronal heating?

Contributed

Paolo Pagano

10.00 - 10.20 Resonant absorption in expanding magnetic flux tubes

Contributed

Thomas Howson

10.20 - 10.40 Phase and group diagrams for ideal two-fluid plasma waves

Contributed

Rony Keppens

10.40 - 11.30 Coffee Break and Poster Session with e-poster Session 1

11.30 - 12.00 Energy transport and heating by torsional Alfvén waves in the partially ionised chromosphere

Invited Talk

Roberto Soler

12.00 - 12.20 Fast-to-Alfvén mode conversion in the structured media in the presence of ambipolar diffusion

Contributed

Elena Khomenko

12.20 - 12.40 How are p-modes converted to act as a wave driver for coronal loop simulations?

Contributed

Julia Maria Riedl

12.40 - 13.00 Two-fluid modelling of waves and shocks in the solar chromosphere

Contributed

Beatrice Popescu

13.00 - 14.30 Lunch

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Oral Programme

Tuesday September 4

Session 2

Chair: *Tóm Van Doorselaere*

- 14.30 - 15.00 Numerical simulations of waves and instabilities in coronal loops
Invited Talk *Norbert Magyar*
- 15.00 - 15.20 Coronal cooling as a result of the Kelvin-Helmholtz instability
Contributed *Andrew Hillier*
- 15.20 - 15.40 Observation of the Kelvin-Helmholtz instability in a solar prominence
Contributed *Heesu Yang*
- 15.40 - 16.00 Solar flares and Kelvin-Helmholtz instabilities
Contributed *Wenzhi Ruan*
- 16.00 - 16.45 Coffee Break and Poster Session with e-poster Session 2
- 16.45 - 17.05 Initiation of Alfvénic turbulence by Alfvén wave collisions: a numerical study
Contributed *Sergei Shestov*
- 17.05 - 17.25 Properties of transverse MHD waves generated by colliding flows
Contributed *Hendrik-Jan Van Damme*
- 17.25 - 17.45 Coronal loop kink oscillations excited by different driver frequencies
Contributed *Andrei Afanasev*

End of day 1

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Oral Programme

Wednesday September 5

Session 3

Chair: *Jose Luis Ballester*

09.00 - 09.40 Recent progress on observations of waves and oscillations in the solar atmosphere

Invited Review *Marco Stangalini*

09.40 - 10.00 Exploring the damping of Alfvén waves from the broadening of spectral line

Contributed profiles in the active and quiescent region corona up to $1.5 R_{\odot}$
Girjesh Gupta

10.00 - 10.20 First imaging observation of standing slow wave in coronal fan loops

Contributed *Vaibhav Pant*

10.20 - 10.40 New observations on the driving mechanism and wave properties of EUV and

Contributed QFP waves
Yuandeng Shen

10.40 - 11.30 Coffee Break and Poster Session with e-poster Session 3

11.30 - 12.00 Large-amplitude prominence oscillations: observations and numerical simulations

Invited Talk *Qingmin Zhang*

12.00 - 12.20 GONG catalog of solar filament oscillations near solar maximum

Contributed *Manuel Luna*

12.20 - 12.40 Numerical study of a 3D prominence model: transverse and longitudinal MHD

Contributed oscillatory modes
Andrés Adrover

12.40 - 13.00 Large-amplitude oscillations in solar prominences in 2.5D models

Contributed *Valeriia Y. Liakh*

13.00 - 14.30 Lunch

End of day 2

Excursion 1: Guided tour Teide National Park

Excursion 2: Guided tour Winery in North Tenerife

Excursion 3: Guided tour La Laguna Historical Town

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Oral Programme

Thursday September 6

Session 4

Chair: *Anne-Marie Broomhall*

09.00 - 09.40 Instrumentation for observing waves and instabilities, especially ALMA

Invited Review *Shahin Jafarzadeh*

09.40 - 10.00 Study of waves from India's solar mission Aditya L1

Contributed *Dipankar Banerjee*

10.00 - 10.20 Alfvén wave dissipation in the solar chromosphere

Contributed *Samuel Grant*

10.20 - 10.40 Spectropolarimetric properties of solar magnetic bright points at high resolution

Contributed *Peter Keys*

10.40 - 11.30 Coffee Break and Poster Session with e-poster Session 4

11.30 - 12.00 Some seismological applications of fast collective waves in coronal structures with continuous transverse structuring

Invited Talk *Bo Li*

12.00 - 12.20 Inference of magnetic field strength and density from damped transverse coronal waves

Contributed *Iñigo Arregui*

12.20 - 12.40 Spatiotemporal analysis of coronal loops using seismology and forward modelling

Contributed *David J. Pascoe*

12.40 - 13.00 Inferring properties of oscillating prominence threads

Contributed *María Montes-Solís*

13.00 - 14.30 Lunch

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Oral Programme

Thursday September 6

Session 5

Chair: *Elena Khomenko*

- 14.30 - 15.00 Waves and oscillations associated with solar jets
Invited Talk *Tanmoy Samanta*
- 15.00 - 15.20 Seismological diagnostic of transverse temperature distribution in coronal structures associated with sunspots
Contributed *Anastasiia Deres*
- 15.20 - 15.40 Stokes diagnostics of synthetic umbral flashes as seen by imaging spectropolarimeters
Contributed *Tobias Felipe*
- 15.40 - 16.00 Energy flux of acoustic waves in the lower solar atmosphere
Contributed *C R Sangeetha*
- 16.00 - 16.45 Coffee Break and Poster Session with e-poster Session 5
- 16.45 - 17.05 Observations of the uncoupling of ionised and neutral species in solar prominences
Contributed *Manuel Collados*
- 17.05 - 17.25 No unique solution to the seismological problem of standing MHD waves
Contributed *Marcel Goossens*
- 17.25 - 17.45 Alfvén wave trains near a 2D null point
Contributed *Alexander Prokopyshyn*

End of day 3

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Oral Programme

Friday September 7

Session 6

Chair: *Manuel Luna*

- 09.00 - 09.40 Long-period intensity pulsations in coronal loops
Invited Talk *Clara Froment*
- 09.40 - 10.00 Linking characteristic timescales and spatial scales for quasi-periodic pulsations in solar flares
Contributed *Chloe E. Pugh*
- 10.00 - 10.20 Connecting solar and stellar flares with quasi-periodic pulsations
Contributed *Anne-Marie-Broomhall*
- 10.20 - 10.40 Complex 3-D dynamics of solar spicule structures
Contributed *Rahul Sharma*
- 10.40 - 11.30 Coffee Break and Poster Session with e-poster Session 6
- 11.30 - 12.00 Helioseismology: linking the solar interior and atmosphere
Invited Talk *Rekha Jain*
- 12.00 - 12.20 First detection of the second harmonic of decay-less kink oscillations in a solar coronal loop
Contributed *Timothy Duckenfield*
- 12.20 - 12.40 Heating effects from driven transverse and Alfvén waves in coronal loops
Contributed *Mingzhe Guo*
- 12.40 - 13.00 Heating of the partially-ionised solar chromosphere by 2-fluid acoustic waves
Contributed *Błażej Kuźma*
- 13.00 - 14.30 Lunch
- End of day 4
End of meeting

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e-poster Programme

Tuesday September 4

Session 1

10.40 - 11.30

- P07 Waves in coronal loops observed during flaring events
Sandra Milena Conde Cuellar, Vera Jatenco-Pereira
- P16 Energy distribution and structure of gravitationally stratified coronal loops
K. Karampelas, T. Van Doorselaere

Session 2

16.00 - 16.45

- P23 The Rayleigh Taylor instability in the two-fluid approach
Beatrice Popescu, Slava Lukin, Elena Khomenko, Angel de Vicente
- P30 Broadening of the DEM by multi-shelled and turbulent loops
Tom Van Doorselaere, Patrick Antolin, Kostas Karampelas

Wednesday September 5

Session 3

10.40 - 11.30

- P08 Streamer wave events observed with STEREO/COR2
Bieke Decraemer, Tom Van Doorselaere, Andrei Zhukov
- P31 2D multi-spectral distribution of prominence oscillations
Maciej Żapiór
- P17 Manifestation of a fast magnetoacoustic wave train in the radio emission from the solar corona
Dmitrii Y. Kolotkov, Valery M. Nakariakov, Eduard P. Kontar

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e-poster Programme

Thursday September 6

Session 4

10.40 - 11.30

- P03 Bayesian statistics and Markov Chain Monte-Carlo in the context of solar observations
S. A. Anfinogentov, D. J. Pascoe, C.R. Goddard, and V.M. Nakariakov
- P14 The magnetic response of the solar atmosphere to umbral flashes
S.J. Houston, D.B. Jess, A. Asensio Ramos, S.D.T. Grant, C. Beck, A.A. Norton, S. Krishna Prasad
- P11 The transverse density profile of coronal loops
C. R. Goddard, D.J. Pascoe, S. Anfinogentov, V.M. Nakariakov

Session 5

16.00 - 16.45

- P13 Vortex formations and its associated swirling jets in a sunspot light bridge
Heesu Yang, Eun-Kyung Lim, Sujin Kim, Yeon-Han Kim, Kyung-Suk Cho
- P18 Thermal conductivity of sunspot fan loops
S. Krishna Prasad, J. O. Raes, T. Van Doorselaere, D. B. Jess

Friday September 7

Session 6

10.40 - 11.30

- P19 On the origin of the consequent brightening of coronal loops in solar flare arcades
L.S. Ledentsov, B.V. Somov
- P26 Interpretation of quasi-periodic oscillations of facula formations on the Sun
P. Strelakova, V. Smirnova, A. Solov'ev, Yu Nagovitsyn

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List of Posters

- P01
traditional Solar magneto-seismology with asymmetric MHD waves
Matthew Allcock, Noémi Kinga Zsámberger, Robert Erdélyi
- P02
traditional Oscillations in a solar coronal arcade
Farhad Allian, Rekha Jain
- P03
traditional Bayesian statistics and Markov Chain Monte-Carlo in the context of solar
observations
+ e-poster *S. A. Anfinogentov, D. J. Pascoe, C.R. Goddard, and V.M. Nakariakov*
- P04
traditional Evidence for precursors of the coronal hole jets in solar bright points
Salome R. Bagashvili, Bidzina M. Shergelashvili, Darejan R. Japaridze, Vasil Kukhianidze, Stefaan Poedts, Teimuraz V. Zaqarashvili, Maxim L. Khodachenko, Patrick De Causmaecker
- P05
traditional Waves in partially ionised plasma in ionisation non-equilibrium
Istvan Ballai
- P06
traditional Effect of heating and cooling on the temporal behaviour of MHD waves in a
partially ionized prominence plasma using different radiative loss functions
J. L. Ballester, M. Carbonell, R. Soler, J. Terradas
- P07
traditional Waves in coronal loops observed during flaring events
+ e-poster *Sandra Milena Conde Cuellar, Vera Jatenco-Pereira*
- P08
traditional Streamer wave events observed with STEREO/COR2
+ e-poster *Bieke Decraemer, Tom Van Doorselaere, Andrei Zhukov*
- P09
traditional A comparison of propagating coronal disturbances (PCDs) in sunspot and plage
loops
I. De Moortel, B. De Pontieu
- P10
traditional Characteristics of EUV coronal bright points using time series analyses
Mohsen Javaherian, Bardia Kaki, Shahriar Esmaeili
- P11
e-poster The transverse density profile of coronal loops
C. R. Goddard, D.J. Pascoe, S. Anfinogentov, V.M. Nakariakov
- P12
traditional Turbulent properties, energy dissipation rate and time timescales of uniturbulence
Marcus Håkansson, Tom Van Doorselaere
- P13
traditional Vortex formations and its associated swirling jets in a sunspot light bridge
+ e-poster *Heesu Yang, Eun-Kyung Lim, Sujin Kim, Yeon-Han Kim, Kyung-Suk Cho*

- P14
e-poster The magnetic response of the solar atmosphere to umbral flashes
S.J. Houston, D.B. Jess, A. Asensio Ramos, S.D.T. Grant, C. Beck, A.A. Norton, S. Krishna Prasad
- P15
traditional MHD Kelvin-Helmholtz instability in the anisotropic solar wind plasma
R. F. Ismayilli, N. S. Dzhalilov, B. M. Shergelashvili, S. Poedts, M. Sh. Pirgulyev
- P16
traditional
+ e-poster Energy distribution and structure of gravitationally stratified coronal loops
K. Karampelas, T. Van Doorselaere
- P17
traditional
+ e-poster Manifestation of a fast magnetoacoustic wave train in the radio emission from the solar corona
Dmitrii Y. Kolotkov, Valery M. Nakariakov, Eduard P. Kontar
- P18
e-poster Thermal conductivity of sunspot fan loops
S. Krishna Prasad, J. O. Raes, T. Van Doorselaere, D. B. Jess
- P19
e-poster On the origin of the consequent brightening of coronal loops in solar flare arcades
L.S. Ledentsov, B.V. Somov
- P20
traditional Comparison of damping mechanisms for transverse waves in coronal loops
María Montes-Solís, Iñigo Arregui
- P21
traditional Exponential or Gaussian damping profiles?
María Montes-Solís, Iñigo Arregui
- P22
traditional Can 2-fluid waves explain chromospheric heating and 3-min oscillations?
Kris Murawski
- P23
e-poster The Rayleigh Taylor instability in the two-fluid approach
Beatrice Popescu, Slava Lukin, Elena Khomenko, Angel de Vicente
- P24
traditional Ion-neutral decoupling around magnetic shocks in partially ionised plasma
Ben Snow, Andrew Hillier
- P25
traditional Magnetic shocks and substructures from torsional wave collisions in coupled expanding flux tubes
Ben Snow, Viktor Fedun, Fred Gent, Gary Verth, Robertus Erdelyi
- P26
traditional
+ e-poster Interpretation of quasi-periodic oscillations of facula formations on the Sun
P. Strelakova, V. Smirnova, A. Solov'ev, Yu Nagovitsyn
- P27
traditional Period increase and amplitude distribution of kink oscillation of coronal loop
Su, W., Guo, Y., Erdelyi, R., Ning, Z.J., Ding, M.D., Cheng, X., and Tan, B.L.
- P28
traditional Large scale flows beneath flaring active regions
Hope Thackray, Rekha Jain

- P29
traditional Phase mixing of Alfvén waves and the effect of chromospheric evaporation
Hendrik-Jan Van Damme, Ineke De Moortel, Paolo Pagano
- P30
traditional
+ e-poster Broadening of the DEM by multi-shelled and turbulent loops
Tom Van Doorsselaere, Patrick Antolin, Kostas Karamelas
- P31
e-poster 2D multi-spectral distribution of prominence oscillations
Maciej Żapiór
- P32
traditional MHD waves in asymmetric waveguides: building theory and preparing high-
resolution applications
Noémi Kinga Zsámberger, Matthew Allcock, Róbert Erdélyi

