Timestamp: 7/8/2016 8:41:09

Title of Proposed Observation:

Small-scale solar activities and their spectroscopic property

Main Objective:

Small-scale solar activities

Scientific Justification:

It is well accepted that the small-scale solar activities play important roles in heating the upper solar atmosphere, including the solar chromosphere and the solar corona (Li et al. 2007; Schmieder et al. 2013; Wang et al. 2014). Detailed study of the response of the upper solar atmosphere to small-scale flux emergence and the related changes of physical parameters will open a new window to investigate the heating mechanisms of the upper solar atmosphere. In this proposal, we would like to observe small-scale solar activities, such as small-scale emerging flux region (SEFR), Ellerman Bombs (EBs), jets, coronal bright points (CBPs) with the Interface Region Imaging Spectrometer (IRIS) together with Hinode and New Solar Telescope (NST) at Big Bear Solar Observatory (BBSO) in order to investigate the physical properties, spectroscopic characteristics and evolutions of these activities.

References

Li, H. et al. 2007, PASJ, 59, S643
Schmieder, B. et al. 2013, A&A, 559, 11
Wang, H.M. et al. 2014, ApJ, 605, 931

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SSC Point of Contact: Tetsuya Watanabe (NAOJ) [EIS]

Dates:

2016 August 19 to 21 in order to coordinate with BBSO/NST
1 day for minimum number of observation days
It is not necessary for observations to be on consecutive days, but each observational sequence should be uninterrupted.

Time window: 16:00-23:00 UT, short interruptions are allowed

Target(s) of interest: The target would be any active and quiet regions on the solar disk, which is possible to produce small-scale activities such as small-scale emerging flux region (SEFR), Ellerman Bombs (EBs), jets, coronal bright points (CBPs)

SOT Requests:

SP, Normal map mode
FOV: 82"×82"
Time cadence: 43 min
Duration: 7 hours
Data volume: 2833 Mbits

EIS Requests:

Case 1 for quiet region (for first 4 hours): EIS Study ID 285

ACRONYM: dob_bp_slit_raster
TITLE: Bright point slit raster
TARGET: Quiet Sun
RASTER TYPE: SCANNING
NO. OF POINTING POSITIONS: 60
SCAN STEP SIZE (arcsec): 2
NO. OF WINDOWS: 6
WINDOW WIDTHS (pixels): 40,24,32,24,24,24
WINDOW HEIGHT (pixels): 160
SLIT/SLOT: 2"
EXPOSURE TIMES (ms): 30000
Line Wavelength (Angstroms): FeXII 186.75 OV 192.90 FeXII 195.12 HeII 256.32 FeX 257.26 SiVII 275.35

Case 2 for quiet region (for latter 3 hours): EIS Study ID 421

ACRONYM: BP_response1_2raster
TITLE: Bright point response study (test) (2 rasters)
TARGET: Quiet Sun
RASTER TYPE: SCANNING
NO. OF POINTING POSITIONS: 50
SCAN STEP SIZE (arcsec): 2
NO. OF WINDOWS: 13
WINDOW WIDTHS (pixels): 24,24,32,24,32,24,24,24,24,24,24,24,24
WINDOW HEIGHT (pixels): 128
SLIT/SLOT: 2"
EXPOSURE TIMES (ms): 20000
Line Wavelength (Angstroms): FeX 184.54 FeVIII 185.25 FeXII 186.74

OV 192.90 FeXII 195.12 FeIX 197.86 FeXIII 202.04 FeXIII 203.82 HeII 256.32 FeXVI 262.98 MgVI 269.00 FeXIV 274.20 FeXV 284.16

Case 3 for active region (for first 4 hours): EIS Study ID 130

ACRONYM: cam_artb_cds_a
TITLE: Active Region Transient Brightenings
TARGET: Active Region
RASTER TYPE: SCANNING
NO. OF POINTING POSITIONS: 100
SCAN STEP SIZE (arcsec): 2
NO. OF WINDOWS: 22
WINDOW WIDTHS (pixels):32,32,40,32,80,32,32,32,32,32,32,32,32,32,32 ,32,32,32,32,32,32,32
WINDOW HEIGHT (pixels): 200
SLIT/SLOT: 2"
EXPOSURE TIMES (ms): 10000
Line Wavelength (Angstroms): FeVIII 185.21 FeXII 186.88 FeXI 188.23 SXI 191.26 CaXVII 192.50 FeXII 195.12 FeXIII 196.54 FeXIII 202.04 FeXIII 203.83 OV 248.46 HeII 256.32 SiX 258.37 SiX 261.04 FeXVI 262.98 FeXIV 264.78 MgVI 270.40 FeXIV 274.20 SiVII 275.35 MgV 276.57 MgVII 278.39 MgVII 280.75 FeXV 284.16

Case 4 for active region (for latter 3 hours): EIS Study ID 193

ACRONYM: SK_AR2_16x200p
TITLE: Ellerman bombs study 16"x200" with 2" slit
TARGET: Active Region
RASTER TYPE: SCANNING
NO. OF POINTING POSITIONS: 8
SCAN STEP SIZE (arcsec): 2
NO. OF WINDOWS: 13
WINDOW WIDTHS (pixels): 24,32,32,32,24,32,24,32,24,24,24,24,32
WINDOW HEIGHT (pixels): 200
SLIT/SLOT: 2"
EXPOSURE TIMES (ms): 1500
Line Wavelength (Angstroms): FeVIII 185.21 FeXI 188.23 CaXVII 192.82 FeXII 195.12 FeXIII 202.04 FeXIII 203.83 FeXVII 254.87 HeII 256.32 FeXIV 264.78 FeXIV 274.20 SiVII 275.35 MgVII 278.39 FeXV 284.16

XRT Requests:

Regular mode FOV: 128 ×128
High cadence
Wavelength: Al-mesh; Al-poly; Thin-Be; thick-Al
Duration: 7 hours

IRIS Requests:

OBSID: 3620258144 (quiet region) 3620256144(active region)

Additional instrument coordination:

BBSO/NST

Previous HOP information:

New proposer

Additional Remarks: