



WHOLE SUN PROJECT
WP references
updated : Jan 15 2021

WP1: Dynamo, convection and the origin of solar magnetic field

Leading HI: MPS, CEA

Hired persons: MPS : F. Kupka (Senior postdoc, 05/01/19 – 06/30/20), K. Mandal (Postdoc, 11/01/19 -), D. Fournier (PhD, 10/01/20 -), CEA : Q. Noraz (PhD, 10/08/19 -)

1. Gizon, Cameron, Pourabdian, Liang, Fournier, Birch, and Hanson, 2020a, Science, 368 1469
2. Auguston, Brun, Toomre, 2019, ApJ, 876 83.
3. Birch, Schunker, Braun, and Gizon, 2019, A&A 628 A37
4. Brun, Strugarek et al. 2021, ApJ submitted
5. Cameron and Schüssler, 2020, A&A, 636 A7
6. Goddard, Birch, Fournier, and Gizon, 2020, A&A 640 L10
7. Hanson, Gizon and Liang, 2020, A&A 635 A109
8. Hazra, Brun, Nandy, 2020a, A&A 642, A51
9. Proxauf, Gizon, Löptien, Schou, Birch, and Bogart, 2020, A&A 634 A44

WP2: Flux emergence on multi-scale and its subsequent evolution

Leading HI: StAndrew, CEA, MPS

Hired Persons: CEA: Rui Pinto (Senior postdoc: 01/06/20 -); StAndrews: P. Syntelis (postdoc: 05/01/19

– 10/01/19), A. Borissov (postdoc, 09/01/20 -)

1. Patsourakos, S. et.al, SSR, V216, Issue 8, id 131 (2020).

WP3: The nature of solar magnetic eruptions, flares and jets

Leading HI: Oslo, StAndrews, IAC Hired persons: Oslo : Kilian Krikova (PhD, 09/01/20 -), StAndrews: G. Chouliaras (PhD , 09/27/20 -), IAC : B. Coronado (PhD, 11/01/20 ; in kind contribution), D. Nobrega (Post doc, 03/01/21 -)

1. Nobrega-Siverio, D.; Moreno-Insertis, F.; Martínez-Sykora, J; Carlsson, M.; Szydlarski, M.; "Nonequilibrium ionization and ambipolar diffusion in solar magnetic flux emergence processes", Astron & Astrophys, 633, A66,2020a
2. Nobrega-Siverio, D.; Martínez-Sykora, J; Moreno-Insertis, F.; Carlsson, M.; "Ambipolar diffusion in the Bifrost Code", Astron & Astrophys, 638, A79, 2020b
3. Joshi, R.; Chandra, R.; Schmieder, B.; Moreno-Insertis, F.; Aulanier, G.; Nóbrega-Siverio, D.; Devi, P.; "Case study of multi-temperature coronal jets for emerging flux MHD models", Astron & Astrophys 639, A22, 2020.
4. Madjarska, M.S.; Chae, J.; Moreno-Insertis, F.; Hou, Z.; Nóbrega-Siverio, D.; Kwak, H.; Galsgaard, K.; Cho, K.; "The chromospheric component of coronal bright points", Astron & Astrophys, accepted, Dec 2020.

5. Luna, M. & Moreno-Insertis, F. (2020): "Large-amplitude prominence oscillations following the impact by a coronal jet". ApJ, submitted, Dec 2020.

WP4: Heating and thermo-dynamical coupling of the solar atmosphere, Energy budget

Leading HI: Oslo, CEA, StAndrews

Hired Persons: Oslo: R. Robinson (PhD 09/23/19), CEA: A. Finley (Postdoc 12/1/20)

1. Shoda M.,..., Brun, A.S., et al., 2020, "Alfvén-wave-driven Magnetic Rotator Winds from Low-mass Stars. I. Rotation Dependences of Magnetic Braking and Mass-loss Rate", ApJ, 896, 123
2. Ahuir J., Brun A. S., Strugarek A., 2020, "From stellar coronae to gyrochronology: A theoretical and observational exploration", A&A, 635, A170
3. Perri B., Brun A. S., Strugarek A., Réville V., 2020, "Impact of solar magnetic field amplitude and geometry on cosmic rays diffusion coefficients in the inner heliosphere", JSWSC, 10, 55
4. Brun A. S., Strugarek A., 2020, "Stellar magnetism: bridging dynamos and winds", mdps.conf, 171
5. Hazra et al. 2020b, "Modelling solar wind variations over an 11-yr cycle with Alfvén wave heating", ApJ, submitted

WP5: The solar-stellar connection and the influence of metallicity and global stellar parameters

Leading HI: CEA, MPS, St Andrews

Hired Persons: CEA: Q. Noraz (PhD, 10/01/19 -), MPS : C. Goddard (Postdoc, 05/01/19 – 06/01/20),

S. Cloutier (PhD, 01/01/20 -), StAndrews : A. Borrison (Postdoc, 09/01/20)

1. Takehiro S.-i., Brun A. S., Yamada M., 2020, "Assessment of Critical Convection and Associated Rotation States in Models of Sun-like Stars Including a Stable Layer", ApJ, 893, 83
2. Brun A. S., Strugarek A., 2019, "Turbulence, magnetism, and transport inside stars", EAS, 82, 311
3. Brun, Strugarek et al. 2021, ApJ submitted