COMMISSION E1 **SOLAR RADIATION AND STRUCTURE**

RAYONNEMENT ET STRUCTURE SOLAIRE

ANNUAL REPORT 2019

Commission E1 members actively participated in all major IAU activities including preparation of proposals for the IAU General Assembly, organization of several IAU Symposia, as well as in numerous educational and research activities to promote astronomy around the world.

In particular, Commission participated in organization of two IAU Symposia (now postponed for 2021): IAUS 362 "Predictive Power of Computational Astrophysics as a Discovery Tool", and IAUS 365 "Dynamics of Solar and Stellar Convection Zones and Atmospheres". In addition, Commission contributed to proposals for the IAU GA Assembly including three Symposia "The Era of Multi-Messenger Solar Physics", "Solar and stellar variability: from the interior dynamics to space weather", "The Sun and Solar Twins: Variability, Planetary Systems, Composition", and Focus Meeting: "Sub-arc second High Resolution Solar Physics."

The Commission organized a very successful IAU Symposium "Solar and Stellar Magnetic Fields: Origins and Manifestations", 30 June - 6 July, 2019, Copiapo, Chile. The Symposium brought together solar and stellar astronomers to discuss key problems of solar and stellar magnetic fields, their origin, evolution, structure, atmospheric and coronal effects, as well as their impact on planetary atmospheres. During the Symposium experts from various fields of solar physics, observers, theorists and modelers, discussed recent advances, exchanged ideas, discussed plans, and developed new collaborations. The Symposium was organized in close cooperation and support of the University of Atacama, other Chilean universities, as well as of local authorities. It was the first international astronomical symposium in Copiapo, and it played a very important educational and public outreach goal.

The Symposium was organized in conjunction with the total solar eclipse in Chile and Argentina. The solar eclipse drew tremendous public attention to astronomy. The SOC and LOC organized public lectures and a special session for the local community. In addition, Symposium participants performed scientific observations of the eclipse and presented their initial results at a special open session on the last day of the Symposium. In particular, the total solar eclipse

provided unique high-resolution images of the low corona, which could not be obtained by any other means. In addition, the Symposium also included an open public session on solar eclipses and planetary transits. The goal of this session was to discuss how the eclipses and transits provide new information about solar and stellar magnetic fields. In addition, this session presented a broad historical overview of solar eclipses, planetary transits, their role in astronomy, as well as a general talk on habitability of exoplanets. The organized public lectures, discussions and other activities promoted astronomical education and research in Chile.

The Symposium science oral program included 9 sessions, 28 invited reviews, 26 contributed talks and 39 contributed lightening talks. In addition, about 70 contributions were presented at four poster sessions. More than 40 students, mostly from Latin American countries, participated in the Symposium. The broad discussions of problems of solar-stellar magnetism and star-planet relations stimulated new interdisciplinary collaborations, and defined the scientific success of the Symposium.