


2021 IEEE INTERNATIONAL WORKSHOP ON

Metrology for AeroSpace

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CALL for PAPERS <<<<

 UNIVERSITÀ DEGLI STUDI DI NAPOLI
FEDERICO II

 UNIVERSITÀ
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 DEL
SANNIO

>>>> for the Special Session on

ROBUST SATELLITE-DERIVED TIME FOR TERRESTRIAL INFRASTRUCTURES

> ABSTRACT

Many infrastructures that shape our lifestyle depend on Global Navigation Satellite System (GNSS). Even though not used for positioning, these infrastructures need GNSS to derive a precise time synchronization necessary for their operations. Examples are power grids, gateways for financial transactions, telecommunication networks and some Ship Reporting Systems (SRS). The vulnerability of GNSS sensors to radiofrequency interference, is a recognized weakness that makes GNSS-dependent infrastructures prone to synchronization errors, which can propagate and induce severe consequences. Such interference can be manmade and be either intentional or accidental, as well can be due to natural causes such as ionospheric scintillations that affect that signal path from the satellite to the ground users.

In the communication field, 5G networks will be one of the assets that will extensively benefit of GNSS-derived timing, posing also additional challenges to the management of multiple timing sources across the network. To realize the benefits of new 5G architectures, highly accurate time synchronization is needed almost everywhere in the network, with an increased need for availability and reliability of the timing source.

This special session is dedicated to advances in the protections of Satellite-derived timing sources for terrestrial networks and critical infrastructures, including new GNSS antennas and RF front end designs, innovative digital signal processing algorithms for interference monitoring, GNSS timing receivers equipped with interfering monitoring capabilities, the use of back up technologies to improve robustness, cyber-security protections and advances on timing protocols and sensors. The session welcomes results of experimental analysis, studies on the use of GNSS authenticated civilian signals to prevent spoofing, as well as the presentation of innovative solutions backward compatible. The presentation of activities and results of R&D projects on the subject are also accepted, if they relate to the topic.

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