



«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

TO PAY A PERMANENT TRIBUTE TO ARCHIMEDES AND GALILEO GALILEI, FOUNDERS OF MODERN SCIENCE
AND TO ENRICO FERMI, THE "ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES



INTERNATIONAL SCHOOL OF QUANTUM ELECTRONICS

58th Course: *INSTRUMENTS AND TECHNIQUES FOR SATELLITE PROPAGATION CAMPAIGNS – WS ON ALPHASAT ALDO PARABONI Q/V BAND EXPERIMENT*

ERICE-SICILY: 23 – 26 OCTOBER 2016

Sponsored by the: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government • Europe Union • CNRS • ESA • ASI • Politecnico di Milano • ONERA • CNES

PROGRAMME AND LECTURERS

Objectives, design and implementation of Alphasat Aldo Paraboni Ka/Q band scientific experiment

• C. RIVA, Politecnico di Milano, IT

Modelling, simulation and measurements of scintillation due to tropospheric turbulence

• D. VANHOENACKER, Université Catholique de Louvain-la-Neuve, BE

Atmospheric numerical weather systems for assessment of propagation conditions

• F. S. MARZANO, University of Rome La Sapienza, IT

The Italian program for high frequency space communication systems

• G. CODISPOTI, ASI, Roma, IT

The ESA program for Alphasat Aldo Paraboni Q/V band experiment

• J. RIVERA CASTRO, ESA/ESTEC, Noordwijk, NL

Algorithms and systems for the data processing of radiowave propagation campaigns

• A. GRAZIANI, Université Catholique de Louvain-la-Neuve, BE

An overview of Joanneum campaigns for radiowave propagation measurements

• M. SCHOENHUBER, Joanneum Research, Graz, AT

The use of experimental data for development and testing of radiowave propagation models

• L. CASTANET, ONERA, Palaiseau, FR

Accuracy of Beacon measurements receivers and performances of antenna tracking systems

• A. ROCHA, Universidade Aveiro, PT

Use of remote sensing and NWP data for data calibration

• L. LUINI, Politecnico di Milano, IT

Planning for a test-bed of an European network of ALPHASAT terminals

• S. VENTOURAS, RAL/STFC, Didcot, UK

Objectives, design and implementation of Alphasat Aldo Paraboni Ka/Q band scientific experiment

• M. RUGGERI, University of Tor Vergata, Roma, IT

PURPOSE OF THE COURSE

Advanced satellite communication systems require use of Ka, Q/V and W bands. For this purpose, the knowledge of atmospheric propagation is needed, with regard to models and measurements of the space- and time-distribution of propagation parameters. The Alphasat satellite was launched successfully in 2013, and it embarked an ASI/ESA Ka&Q/V band payload (named in memory of Prof. Aldo Paraboni, the Italian researcher who conceived it). This payload makes possible a new European SatCom propagation experiment, ASAPE, extending past campaigns (e.g the ESA Ka OPEX, NASA Ka NAPEX, ASI Ka/Q/V CEPIT). At this moment the ASAPE campaign includes two ASI main stations in Italy, one ESA ground station in Austria, two NASA stations installed in Italy and UK, two ONERA and CNES stations installed in France, and a number of other experimenters in Europe (presently about 15). The campaign was originally planned up to end of 2016 but at the time of this proposal ESA, ASI and other European Space Agencies have approved the campaign extension of the payload operations 2019.

In this framework the proposed course has 2 objectives: (1) To review the results of the first, three years of campaign (2013-2016) and update current or define new scientific objectives for the continuation of the campaign in the next years (2017-2020) (2) To host a meeting of the Group of the AlphaSat Aldo Paraboni propagation Experimenters (ASAPE) to progress on collaborative activities and collect proposals for scientific projects, with particular the experimental techniques used for this type of campaigns (instruments, data processing and data analysis for model development and verification).

APPLICATIONS

Persons wishing to attend the Course should apply in writing to the Director of the Course:

Dr. Lorenzo LUINI
Politecnico di Milano, DEIB - Via Ponzio 34/5 - 20133 Milano, IT
Tel +39.02.23993693 – Fax +39.02.23993413

They should specify: i) full name(s), address, age, nationality; ii) academic qualifications and degree; iii) present position and place of work; iv) current research activity; v) list of publications.

POETIC TOUCH

According to legend, Erice, son of Venus and Neptune, founded a small town on top of a mountain (750 metres above sea level) more than three thousand years ago. The founder of modern history — i.e. the recording of events in a methodic and chronological sequence as they really happened without reference to mythical causes — the great Thucydides (~500 B.C.), writing about events connected with the conquest of Troy (1183 B.C.) said: «After the fall of Troy some Trojans on their escape from the Achaei arrived in Sicily by boat and as they settled near the border with the Sicani all together they were named Elymi: their towns were Segesta and Erice.» This inspired Virgil to describe the arrival of the Trojan royal family in Erice and the burial of Anchise, by his son Enea, on the coast below Erice. Homer (~1000 B.C.), Theocritus (~300 B.C.), Polybius (~200 B.C.), Virgil (~50 B.C.), Horace (~20 B.C.), and others have celebrated this magnificent spot in Sicily in their poems. During seven centuries (XIII-XIX) the town of Erice was under the leadership of a local oligarchy, whose wisdom assured a long period of cultural development and economic prosperity which in turn gave rise to the many churches, monasteries and private palaces which you see today. In Erice you can admire the Castle of Venus, the Cyclopean Walls (~800 B.C.) and the Gothic Cathedral (~1300 A.D.). Erice is at present a mixture of ancient and medieval architecture. Other masterpieces of ancient civilization are to be found in the neighbourhood: at Motya (Phoenician), Segesta (Elymian), and Selinunte (Greek). On the Aegadian Islands — theatre of the decisive naval battle of the first Punic War (264-241 B.C.) — suggestive neolithic and paleolithic vestiges are still visible: the grottoes of Favignana, the carvings and murals of Levanzo.

Splendid beaches are to be found at San Vito Lo Capo, Scopello, and Corino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

PLEASE NOTE

Participants should arrive in Erice on October 23, not later than 5 pm.

More information about the other activities of the «ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE can be found on the WWW at the following address:
<http://www.ecsem.infn.it>