

**NEW FRONTIERS IN MILLIMETRE/
SUB-MILLIMETRE WAVES INTEGRATED
DIELECTRIC FOCUSING SYSTEMS
(NEWFOCUS)**

Standing Committee for Physical and Engineering Sciences (PESC)



Introduction

The European Science Foundation (ESF) is an independent, non-governmental organisation, the members of which are 79 national funding agencies, research performing agencies, academies and learned societies from 30 countries.

The strength of ESF lies in the influential membership and in its ability to bring together the different domains of European science in order to meet the challenges of the future.

Since its establishment in 1974, ESF, which has its headquarters in Strasbourg with offices in Brussels and Ostend, has assembled a host of organisations that span all disciplines of science, to create a common platform for cross-border cooperation in Europe.

ESF is dedicated to promoting collaboration in scientific research, funding of research and science policy across Europe. Through its activities and instruments ESF has made major contributions to science in a global context. The ESF covers the following scientific domains: Humanities; Life, Earth and Environmental Sciences; Medical Sciences; Physical and Engineering Sciences; Social Sciences; Marine Sciences; Materials Science and Engineering; Nuclear Physics; Polar Sciences; Radio Astronomy; Space Sciences.

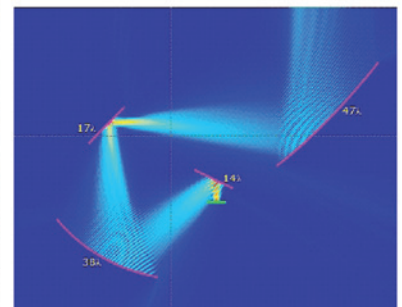
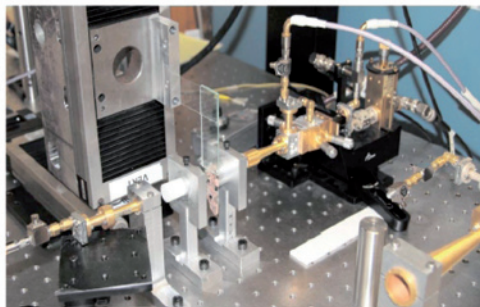
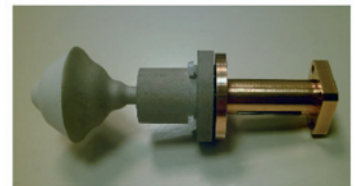
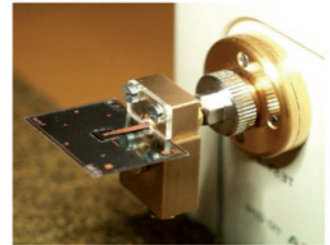
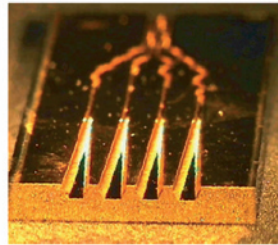
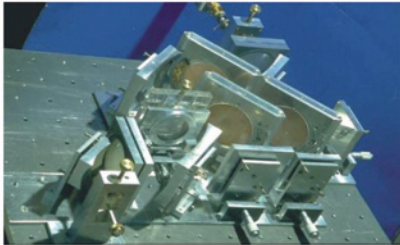
NEWFOCUS is a five-year ESF Research Networking Programme (RNP) on integrated dielectric focusing systems at mm and sub-mm wavelengths that gathers together European research teams with strong and unique background and expertise in the field of quasi-optics.

The running period of NEWFOCUS is five years, from June 2010 to June 2015.

Programme Objectives

The main objectives of NEWFOCUS are the following:

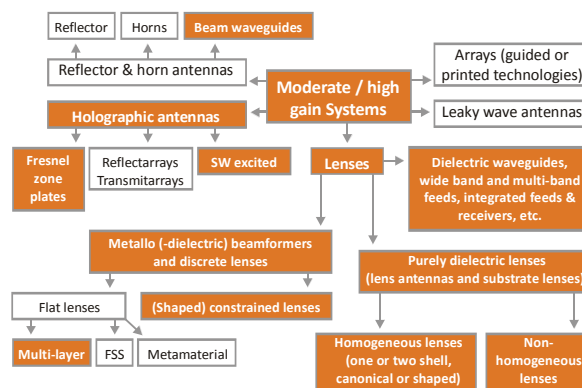
- Development of advanced analytical and numerical modelling techniques in electromagnetic theory using complementary formulations for the analysis, synthesis and optimisation of integrated dielectric focusing systems
- Implementation of powerful computer-aided-design tools
- Benchmarking measurement facilities at mm and sub-mm wavelengths
- Promotion of research mobility



Technologies in the Core of the Programme

Antenna technologies covered by NEWFOCUS include generic focusing systems and their associated feeds and sensors. More precisely:

- Dielectric or metallo-dielectric lenses of arbitrary shape and size, and made of various homogeneous or non-homogeneous materials
- Feeds and detectors for passive or active devices that can be integrated at the 'system' base and be arranged into arrays, e.g. for the design of reconfigurable, beam forming or beam steering antennas and high-resolution receiving / surveillance / diagnostic systems



Forthcoming Events and Activities

Presentation of NEWFOCUS at the COST ASSIST Workshop during ICECom-2010

The first official presentation of NEWFOCUS will be given at the COST ASSIST Workshop during the 20th International Conference on Applied Electromagnetics and Communications (ICECom), 21-22 September 2010, Dubrovnic, Croatia.

Workshop in the frame of ICECom-2010

The workshop entitled 'New frontiers in millimetre / sub-millimetre wave antennas' will be organised during the ICECom-2010 International Conference, 23 September 2010, Dubrovnic, Croatia.

Educational courses

Post-graduate courses on integrated lens antennas and quasi-optical technologies and systems will be organised within the frame of the European School on Antennas. Additional information will be available soon.

Publication of a reference book

One edited reference book on 'integrated dielectric focusing systems at millimetre and sub-millimetre waves' is going to be published. The book will represent a survey of the state-of-the-art within the field of the Programme and will summarise the scientific results generated by NEWFOCUS. Proposals for contributions are welcome.

Call for Proposals

Research mobility: Short and Exchange visit travel grants

A limited number of grants are available:

- Short visits of up to 15 days (in all, 120 days per year)
- Exchange visits from 15 days to 6 months (in all, 30 months per year)

The grants will be competitively distributed on the basis of the scientific merit of the proposed project and its relevance to the Programme.

Support for scientific meetings

The Steering Committee will consider proposals for conferences, workshops and schools on topics within the scope of the Programme and with a European or international dimension. They will be assessed on their scientific quality and relevance to the Programme. Priority will be given to meetings taking place in countries that financially support the Programme, and the applicants should be established researchers based in a country in which the ESF has a member organisation.

The programme is open to everyone. Applications are to be submitted online and will be considered on a continuous submission basis. Details of the calls and submission rules are available at NEWFOCUS administrative website: www.esf.org/newfocus.

Funding

ESF Research Networking Programmes are principally funded by the Foundation's Member Organisations on an *à la carte* basis. NEWFOCUS is supported by:

- **Fonds zur Förderung der wissenschaftlichen Forschung in Österreich (FWF)**
Austrian Science Fund, Austria
- **Fonds voor Wetenschappelijk Onderzoek-Vlaanderen (FWO)**
Research Foundation Flanders, Belgium
- **Nacionalna zaklada za znanost, visoko školstvo i tehnološki razvoj Republike Hrvatske (NZZ)**
The National Foundation of Science, Higher Education and Technological Development of the Republic of Croatia, Croatia
- **Suomen Akatemia/Finlands Akademi**
Academy of Finland, Finland
- **Centre National de la Recherche Scientifique (CNRS)**
National Centre for Scientific Research, France
- **Deutsche Forschungsgemeinschaft (DFG)**
German Research Foundation, Germany
- **Fundação para a Ciência e a Tecnologia (FCT)**
Foundation for Science and Technology, Portugal
- **Schweizerischer Nationalfonds (SNF)**
Swiss National Science Foundation, Switzerland
- **Engineering and Physical Sciences Research Council (EPSRC)**, United Kingdom

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For the latest information on this Research Networking Programme consult the NEWFOCUS website:
www.esf.org/newfocus