**LIST OF AVAILABLE POSITIONS AND DETAILS**

**SELECT THE POSITION YOU WISH TO APPLY FOR IN THE APPLICATION FORM**

**OUTGOING STAFF TEACHING/TRAINING MOBILITY**

**Field: 08 AGRICULTURE 05 NATURAL SCIENCES /AGRO-BIODIVERSITY**

**Posizione 1 STAFF Host Institution EIAR Title  Agro-biodiversity in the era of genomics: Basic Principles, Applications and Prospects**

**Minimum duration 5 days - Maximum 9 days + 2 trips**

This mobility includes seminars on topics related to sequencing technologies and the use of genomic techniques for the valorization of plant agro-biodiversity, at the Department of Plant Biology and Biodiversity of the College of Natural and Computational Science (CoNCS), at the university of Addis Ababa. It also includes participation and supervision of scheduled visits by a delegation of SSSA students and staff at the experimental station of the Ethiopian Institute of Agricultural Research located in Debre Zeit. Participation in seminars and short discussions with technical staff of the institutions is also expected to consolidate current collaborations and plan future initiatives.

**Position 2 STAFF : Titolo: Agro-biodiversity, adaptation and genotype b: Basic Principles and Applications**

**Minimum duration 5 days - Maximum 9 days + 2 trips**

This mobility includes lectures and seminars on the use of genomic sequencing data for crop adaptation studies to climate change. The contents will cover the main methods used for adaptation genomics studies, such as redundancy analysis and machine learning-based methods for modeling genetic diversity and bioclimatic characteristics of cultivation sites. The lectures and seminars will take place at the Department of Plant Biology and Biodiversity of the College of Natural and Computational Science (CoNCS). The mobility also includes participation and supervision of scheduled visits by a delegation of SSSA students and staff at the experimental station of the Ethiopian Institute of Agricultural Research located in Debre Zeit. Participation in seminars and short talks with the technical staff of the Ethiopian Biodiversity Institute responsible for the Debre Zeit experimental station are also expected.

**OUTGOING LEARNERS MOBILITY**

**Field 08 AGRICULTURE 05 NATURAL SCIENCES /AGRO-BIODIVERSITY**

**Position 3 LEARNERS Host Institution Addis Ababa University**

**Title: Multidisciplinary Mobility on Plant Breeding at the Department of Plant Biology and Biodiversity of the College of Natural and Computational Science (CoNCS) Addis Ababa University.**

**Minimum duration 7 days - Maximum 30 days (including travel)**

The mobility has a specific focus on the fields of plant breeding and genetic resources, mainly to promote multidisciplinary collaboration, enabling participating institutions to collaborate in the vital areas of plant breeding and genetic resources.

The main objectives of this outgoing mobility programme are:

1. to facilitate the exchange of knowledge gained from the AAU Department of Plant Biology and Biodiversity, particularly on the 'functional use of agro-biodiversity to address drought and food security issues. The programme will involve the sharing of expertise and the use of quantitative genetics methods, which are of fundamental importance in accelerating molecular advances in crop breeding**.**

**Position 4 LEARNERS Host location Addis Ababa University**

**Title: Multidisciplinary Climate Research and Training Mobility at the Institute of Geophysics, Space Science and Astronomy (IGSSA), Addis Ababa University, Addis Ababa, Ethiopia**

**Minimum duration 7 days - Maximum 30 days (including travel)**

The main objectives of this outgoing mobility programme are:

1. training focusing on sub-seasonal to seasonal (S2S) forecasting methods, crop climate modelling and agricultural drought monitoring and prediction. This will include close collaboration with IGSSA staff and PhD students. students and CSP lecturers.

2. Knowledge sharing and skills transfer on the topics of climate change and its impact on agriculture, crop climate modelling including training on calibration methods and validation, climate information services and application and use of climate big data in agriculture.

**Outgoing Learners Mobility 1 Settore 0610 Information and Communication Technology**

**Position 5 LEARNERS Host location Addis Ababa University**

**Title: Application of Fiber Optic Sensors in Monitoring Railways Safety and Integrity**

**Duration Minimum 7 days - Maximum 30 days (including travel)**

The mobility involves research activity at the AAIT and African Railway Center of Excellence and involves the study, requirements analysis and design and testing of a system utilizing FBGs and Distributed Temperature sensors for monitoring the integrity and safety of railways track in the Ethio-Djibouti railways line.  The activity is part of ongoing plans for joint, applied research projects between the SSSA and School of Electrical and Computer Engineering Department of the AAU.

**Position 6 LEARNERS Host location Addis Ababa University**

**Title: Optical transmitter optimisation for a specific channel using neural network.**

**Duration Minimum 7 days - Maximum 30 days (including travel)**

Short-reach fiber-optic communication systems usually use intensity-modulation (IM) direct-detection (DD) systems. One limitation of IMDD systems is their ability to detect only the intensity of the optical signal, apparently losing the information contained in its phase. This information loss puts some constraints on the modulation formats that can be detected by IMDD and makes it harder, or even impossible, the compensation of some transmission impairments.

This traineeship activity involves work on the optimization of a transmitter over a nonlinear channel to compensate for transmission impairments by architecting a specific symbol mapping.  For the optimization a neural network (NN) model will be trained offline using data from an IMMDD system over a nonlinear channel. Then a look-up table for symbol mapping can be generated from the trained model, avoiding the computationally expensive usage of NN model in online IMDD system. Results will be presented as bit error rate (BER) vs link distance.

**OUTGOING STAFF TEACHING/TRAINING MOBILITY**

**SECTOR 0610 INFORMATION AND COMMUNICATION TECHNOLOGY**

**Position 7 STAFF: Host location Addis Ababa University**

**Title: Fiber Optic Sensing and Photonic Integration: Basic Principles, Applications and Prospects**

**Duration Minimum 5 days - Maximum 7 days + 2 trips**

This mobility involves lectures and seminars on fiber optic sensor and integrated photonics, at the School of Electrical and Computer Engineering of the AAU. It also includes participation in and oversight on the coordination of planned visits by a delegation of students and staff of SSSSA to the Artificial Intelligence Institute, the Ethiopian Museum of Art and Science, and the Grand Ethiopian Renaissance Dam or, if travel is not possible, an alternative dam near Addis Ababa. There will also be participation in seminars by, and short discussions with, technical staff of institutions in search of possible future collaborations.

**Position 8 STAFF Host location Addis Ababa University**

**Title: Optical Sensors on Chip: Technology and Applications**

**Duration Minimum 5 days - Maximum 15 days + 2 trips**

This mobility involves lectures and seminars on optical sensing systems on chip. The contents will cover details about the technology involved in the design and fabrication of these devices, and their applications for physical and biochemical sensors. The lectures and seminars will take place at the School of Electrical and Computer Engineering (SECE) of the AAU. There will also be participation in seminars by, and short discussions with, technical staff of the SECE.

**Position 9 STAFF Host location Addis Ababa University**

**Title: Application of Fiber-optic Systems and Advanced Signal Processing Techniques in the Renewable Energy Sector**

**Duration Minimum 7 days - Maximum 40 days including travel**

This mobility includes the continuation of ongoing discussions on a draft proposal with SECE staff on the application of fibre-optic sensors and advanced signal processing techniques to the renewable energy industry. The planned project proposal concerns the use of a distributed sensor or array of discrete sensors for measuring the temperature profile in photovoltaic cells at the Methera Solar Power Plant (120 MW power generation capacity, plant located 123 km east of Addis Ababa).

The mobility also includes participation in and close coordination of planned visits by a delegation of SSSA students and staff to the premises of the Institute of Artificial Intelligence, the Ethiopian Museum of Art and Science and the Great Ethiopian Renaissance Dam or, if travel is not possible, to an alternative dam near Addis Ababa with other SSSA delegates.

**Position 10 STAFF Host location Addis Ababa University**

**Title: Fundamentals of Fiber-optic Systems for Optical Communication and Photonics Sensing**

**Duration Minimum 7 days - Maximum 40 days including travel**

This mobility involves 30 hours of lectures at the School of Electrical and Computer Engineering on distributed fiber optic systems, covering basics of fiber systems, passive and active components, optical communication and fiber sensors, application of distributed sensing.

The course introduces basics of photonics used in fiber optics systems, the detailed characteristics of light and optical components, discrete optical fiber sensors, scattering phenomena and sensing configurations used in distributed sensing and recent advance on the various applications of such sensors with particular attention to distributed dynamic sensors for safety and integrity monitoring.

The mobility also involves continuation of close advisory of the research activities of doctoral and MSc students of the SECE.

**OUTGOING STAFF MOBILITY, SECTOR 0312 POLITICAL SCIENCE**

**Position 11 STAFF Host Centre ECSOC**

**STAFF training mobility : Title: Enhancing the role of civil society for peace governance in Ethiopia**

**Duration Minimum 5 days Maximum 11 days + 2 travel days**

This mobility foresees the secondment of a staff member of the Scuola Superiore Sant'Anna with expertise in political science, international relations, African institutions and governance, to support the activities of the Ethiopian Civil Society Organisations Council (ECSOC), a second level platform of Ethiopian civil society, aimed at supporting the role of national and international third sector organisations in the areas of inclusive governance in the conflict and post-conflict context. In this regard, preliminary joint and participatory research activities will be carried out, with a focus on the issue of political polarisation and humanitarian access. The mobility will also provide an opportunity to consolidate the relationship already established between the Emerging Research in International Security (ERIS) group of the Scuola Superiore Sant'Anna, with a view to formalising an institutional exchange in the years to come and to designing future joint initiatives.

It should be noted that the mobility also includes the participation and supervision of planned visits by a delegation of SSSA students and staff to Addis Ababa to international and regional political institutions in the city.