CONVOCATORIA DE PRÁCTICAS INTERNACIONALES/ CALL FOR INTERNATIONAL INTERNSHIP

CONVENIO CEBE 2021 / CEBE 2021 AGREEMENT

I. HOST APPLICANT INFORMATION

This person is responsible for signing the Learning Agreement, amending it if needed, supervising the trainee during the traineeship and signing the Traineeship Certificate.

Name	**María Boto Ordóñez**				
Position	**Researcher (Postdoc)**				
Contact (e-mail, phone)					
Department/Faculty. Institution	**Design department. Royal Academy of Fine Arts(KASK). University College Ghent, Hogent**				
Organization Type (see annex I)	EPLUS-EDU-ADULT				
Public body	☒ **YES** ☐**NO**	**Non-Profit**	☐**YES** ☒**NO**	**Size**	☐**< 250 employees** **x >250 employees**
Address; website	KASK, School of Arts, HOGENT Louis Pasteurlaan 2, 9000 Gent, Belgie **https://schoolofartsgent.be/** **http://laboratorium.bio/**				

II. PROJECT DESCRIPTION

Description of the project that will be done by the student-trainee at the host institution.

Wished period for mobility [(1)] **: from (day/month/year) .... 04/10/21 to (day/month/year) 28/01/22**
1. Project title: Ecology of Colour
2. Number of working hours per week: 36

3. Detailed programme of the traineeship [2] (max. 300 words):

In living creatures, colours derive from pigments and structures. Structural colouration produces colour by microscopically structured surfaces in layers fine enough to interfere with visible light. Structural colours are responsible for butterflies colours, bird feathers, iridescence in e.g. beetles. The feathers of a peacock tail are pigmented brown (melanin), but the interference of light also reflects blue, turquoise and other iridescent colours. By light interaction, the natural colour palette obtained is wider than the one obtained from pigments and is responsible for phenomena such as iridescence or rapid colour changes which results in adaptive camouflage.

The attempt to reproduce the natural phenomenon of structural colouration has been done until now with plastic biopolymers, but the advances in nanotechnology facilitate creation based on biomaterials. These colours in nature are often built up from simple biological building blocks things as cellulose, chitin, keratin, and melanin. Biomaterials highly abundant in nature, biodegradable and non-toxic, become a solution for the creation of eco-paint.

In the project "Ecology of colour", we use melanin as building blocks to create films that generate structural colouration. Melanin is the widest pigment present in the animal kingdom and its extraction is not destructive for the organism. In collaboration with an international network of scientific institutions in Europe and the United States, this innovative research line position the biolab at KASK as the first non-scientific institution that applies this technology in arts and design.

During the traineeship, the trainee will join the project "Ecology of colour". He/She will learn how to form melanin films and transfer them to different materials like paper, textile or ceramics. He/She will also perform experiments combining melanin with other biomaterials, like keratin and chitin, mimicking how is present in nature. The trainee will be introduced to several design techniques as 3D design, printing, modelling to apply them in the creation of objects where the colour will be applied, as well as a visual identity. Occasionally, he/she will give scientific support to projects by artists and designers of the school.

4. Knowledge, skills and competences to be acquired by the end of the traineeship (expected Learning Outcomes)(max 100 words):

The trainee will have an introduction to the creation of melanin nanofilms and the application on different materials commonly used in the art and design field as paper, textile or ceramic. He/She will also work with other colouring materials presented in nature, combining and applying them in different materials. The trainee will learn different techniques of colour transfer, as screenprinting, dyeing, modelling and digital printing. He/She will help in the development of a structural colour palette and learn about basic design principles in the creation of a visual identity. During the traineeship, the trainee will be encouraged to the development of his/her own ideas within the research project, being mentored and supported by the laboratory team. The trainee will support the collaboration with the Research group Evolution and Optics of Nanostructures at Ghent University analysing the films with a spectrometer and an electron microscope.

In this process, the trainee will not only learn new techniques of other fields but also will learn how to work in a multidisciplinary team, how to communicate scientific work in other terms and gain the confidence to apply creativity to reach innovative solutions.

5. Monitoring plan (max 100 words):

The trainee will be accompanied during the whole traineeship, and his/her work will be monitored weekly by the lab manager. He/She will receive several training sessions in different departments of the school of arts to facilitate the implementation of design methodologies in his/her scientific performance.

6. Evaluation plan (max 100 words):

The trainee will be evaluated based on his/her continuous performance in the laboratory. The trainee is expected to lead someexperimentations in the development of structural colouration, help colleagues with their scientific experiments and contribute with his/her own proposals and ideas to the research project. At the end of the internship, the trainee will be asked to present a final memory of his/her work in the laboratory and shared it with the School of Arts, Ghent.

7.a. Impacts and benefits of the traineeship to the host applicant (max 100 words):

The traineeship will bring new scientific perspectives and methodologies in relation to his/her background in our research group. The trainee will give scientific support to the already existing projects and help out colleagues in the laboratory tasks. The trainee will potentially enlarge the existing network of Laboratorium biolab with his/her international contacts, institutions and broader network.

7.b. Impacts and benefits of the traineeship to the trainee (max 100 words):

The trainee will have the opportunity to work with colleagues that come from the fields of art and design. He/She will learn to connect scientific methodologies to art and design practice methodologies and tools. The trainee will have the opportunity to develop his/her own ideas with it the research project and to work independently.

This traineeship is a unique opportunity for students with a scientific background that want to explore their scientific inventiveness and creativity within an interdisciplinary environment.Scientific results are pushed towards materiality and applications also outside the laboratory space. The trainee will develop a critic and creative way of thinking that will help him in future interdisciplinary projects.

III. STUDENT PROFILE AND REQUIREMENTS

This section refers to specific knowledge or expertise that the student/trainee must have in order to proceed successfully with the proposed project.

8. Research Area (see annex II): *Biology, Biochemistry, Chemistry, Chemistry engineering*		
9. Is the host applicant / scientific supervisor willing to evaluate the project performance so that the student could validate the traineeship as ECTS credits (3):		*X YES ☐NO*
10. Student required expertise and technical knowledge: *No*		
11. Level of studies: *Master*		
12. Language: English		
*(4) The level of **language competence** in English (indicate here the main language of work that the trainee already has or agrees to acquire by the start of the mobility period is: A1☐ A2☐ B1☐ B2☒ C1 ☐C2 ☐ Native speaker ☐*		
13. Does the host institution require any other language besides the language of work?	*☐YES ☒ NO*	***Which one?:***
14. Does the host institution require any further paperwork done or any other relevant information to host a student/trainee (under the condition of this programme)	*☐YES ☒ NO*	***14. A*** *If YES, please detail:*

IV. Consent to publish Traineeship Data.

I agree that my name, title of the project, its duration and the name of the Receiving Institution / Enterprise can be published on the CEBE website as awarded supervisor of the Traineeship Programme 2020.

(1) a) Related to UAM: A minimum of 2 months and up to 4 months (only the first 3 are funded). The planned period in this call should be between 1st of June 2020 and 30th of December of 2021. After the matching of host candidates with students and by mutual agreement between the two parties, the exact dates can be changed and the total stay could be prolonged up to 6 months; b) Related to UCLM: A minimum of 2 months and up to 4 months (all 4 months are funded). The estimated start date of the internship is 1st July and can be extended up to a total of 12 months.
(2) Consider that this must be read by the selection committee but also by the students, who will apply to the project.
(3) If NO, only students who will not validate the project as ECTS credits will be assigned for matching with this applicant. The application to validate the project as ECTS credits will come exclusively from the student.
(4) Level of language competence: a description of the European Language Levels (CEFR) is available at: https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr

Annex I: List of Organisation Types

CODE	Organisation type
EPLUS-EDU-HEI	Higher education institution (tertiary level)
EPLUS-EDU-GEN-PRE	School/Institute/Educational centre – General education (pre-primary level)
EPLUS-EDU-GEN-PRI	School/Institute/Educational centre – General education (primary level)
EPLUS-EDU-GEN-SEC	School/Institute/Educational centre – General education (secondary level)
EPLUS-EDU-VOC-SEC	School/Institute/Educational centre – Vocational Training (secondary level)
EPLUS-EDU-VOC-TER	School/Institute/Educational centre – Vocational Training (tertiary level)
EPLUS-EDU-ADULT	School/Institute/Educational centre – Adult education
EPLUS-BODY-PUB-NAT	National Public body
EPLUS-BODY-PUB-REG	Regional Public body
EPLUS-BODY-PUB-LOC	Local Public body
EPLUS-ENT-SME	Small and medium sized enterprise
EPLUS-ENT-LARGE	Large enterprise
EPLUS-NGO	Non-governmental organisation
EPLUS-FOUND	Foundation
EPLUS-SOCIAL	Social partner or other representative of working life
EPLUS-RES	Research Institute/Centre
EPLUS-YOUTH-COUNCIL	National Youth Council
EPLUS-ENGO	European NGO
EPLUS-NET-EU	EU-wide network
EPLUS-YOUTH-GROUP	Group of young people active in youth work
EPLUS-EURO-GROUP-COOP	European grouping of territorial cooperation
EPLUS-BODY-ACCRED	Accreditation, certification or qualification body
EPLUS-BODY-CONS	Counselling body
EPLUS-INTER	International organisation under public law

EPLUS-SPORT-PARTIAL	Organisation representing the sport sector
EPLUS-SPORT-FED	Sport federation
EPLUS-SPORT-LEAGUE	Sport league
EPLUS-SPORT-CLUB	Sport club

Annex II: Research Areas

Area of knowledge	University
Agricultural and agri-food engineering	Universidad Castilla La Mancha
Aerospace engineering	Universidad Castilla La mancha
Biochemistry	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Biology	Universidad Autónoma de Madrid
Biomedical engineering	Universidad Castilla La Mancha
Chemical Engineering	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Chemistry	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Computer Engineering	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Computer Engineering and Mathematics	Universidad Autónoma de Madrid
Electrical Engineering	Universidad Castilla La mancha
Environmental Sciences	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Food Science and Technology	Universidad Autónoma de Madrid, Universidad Castilla La mancha
Forestry and environmental engineering	Universidad Castilla La mancha
Human nutrition and dietetics	Universidad Autónoma de Madrid
Industrial and automatic electronics engineering	Universidad Castilla La mancha
Mathematics	Universidad Autónoma de Madrid
Mechanical engineering	Universidad Castilla La mancha
Medicine	Universidad Castilla La mancha
Nursing	Universidad Castilla La mancha
Pharmacy	Universidad Castilla La mancha
Physics	Universidad Autónoma de Madrid
Physiotherapy	Universidad Castilla La mancha