

ACOUCTECT

Open Position at Materialise NV in the field of Additive Manufacturing of acoustic meta-materials

Engineering of advanced acoustic meta-materials made with Additive Manufacturing (ESR10)

Acoutect is an European project running from January 2017 until December 2020. This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement number 721536.

Acoutect marries "Acoustics" and "Architect" and responds to the important role that Acousticians have in the design of modern buildings. The overarching aim of Acoutect is to set up a PhD training network to revitalize the field of building acoustics and react to the acoustic challenges stemming from modern building concepts to deliver sustainable indoor environments with respect to health and well-being. The coordinator of the project is Eindhoven University of Technology (TU/e).

Within this project we are seeking an early-stage researcher (ESR) with a duration of 36 month to join Materialise NV in Belgium.

Materialise NV

As of the start in 1990 the goal of Materialise was to enable new uses for the extraordinary potential that 3D printing offers. Since then, Materialise has pursued its experience into a range of software solutions, engineering and 3D printing services, which together form the backbone of the industry.

Materialise's open and flexible platforms enable players in industries such as healthcare, automotive, aerospace, art and design, and consumer goods, to build innovative 3D printing applications that make the world a better and healthier place.

Headquartered in Belgium, with branches worldwide, the company has brought together the largest group of software developers in the industry and one of the largest 3D printing facilities in the world.

Ultimately, Materialise empowers their customers to transition towards a digital manufacturing process and to launch innovations that have the potential to forever change the face of their industry.

Project Background

To ensure a healthy environment for people living and working in buildings, research and engineering in the area of

building acoustics is essential. Developments in modern building concepts, such as sustainable low-energy consuming buildings, buildings with lightweight materials and open plan working environments, as well as the need to build in extremely noisy areas, require involvement of acoustic experts in order to successfully (re)design buildings without negatively impacting upon people's health and well-being. Taking up current and future acoustic challenges requires innovative solutions based on a thorough understanding and mastering of modern methods and tools, as well as a holistic acoustic approach involving acoustic design, products and subjective evaluation. However, in the complex field of building acoustics, research activities typically are not holistic and have become slightly marginalised. As a consequence, there is a lack of building acoustics experts.

To meet the future acoustic needs of the built environment, Acoutect is constructed around two objectives:

1. Establish a long-lasting European-wide training programme on building acoustics.
2. Launch an innovative research programme.

With these objectives, Acoutect will equip early stage researchers (ESRs) with skills to ensure acoustic quality of modern and future building concepts, and with excellent perspectives for a career in industry or academia within the area of building acoustics. The training and supervision to reach these objectives is offered by the Acoutect consortium.

Vacancy description

Acoustic meta-materials have a high potential for instance as acoustic damper for noise in a certain frequency band. A pilot-study performed at KU Leuven provided a proof-of-concept for meta-materials manufactured with Additive Manufacturing (work of C. Claeys et al).

The goal of this research is to optimise printed structures for acoustic metamaterials and to investigate how to scale meta-materials in volume and size for its usability in buildings. Furthermore the research findings will be implemented in a demonstrator. Topics connected to this work include defining possible structures for meta-materials, investigation of the manufacturability of structures for production with Additive Manufacturing, selection of

appropriate acoustic structures taking into account combination of acoustic properties and the manufacturability, investigation of different AM technologies and materials.

In performing the research there will be a close collaboration with ESR7 from KU Leuven.

Candidate Profile

All candidates must be fluent in spoken and written English. The R&D is highly multidisciplinary. An ideal candidate has a M.Sc. in engineering (mechanical, materials, computer science).

- Knowledge of programming languages is a strong advantage.
- Candidates get the opportunity to perform this work as part of a PhD study.
- All members of the network are equal opportunity employers, both female and male candidates are invited to apply.

Job conditions

The host organisation will appoint the successful applicant under an employment contract with a very competitive salary according to EU regulation, including social security. The duration of the contract is, at least, 36 months. The fellow is expected to join their host organizations starting from July 2017 (estimated time). The salary is composed from the following allowances depending on the personal status of each fellow (see more details at www.acoutect.eu):

- Living allowance: Monthly rate of €3,110. This amount will be multiplied by the Country Correction Coefficient of the recruiting institution. This amount includes the monthly salary for the fellow before any deductions (contributions of both employers and employees to social security, pension, taxation, voluntary deductions, etc).
- Mobility Allowance: Monthly rate of €600. Contributes to the expenses of the researcher caused by the mobility.
- Family Allowance: Monthly rate of €500. For all the recruited fellows who have family at the time of the recruitment.

Additional funding for participation to courses, workshops, international conferences, etc. is ensured.

This position includes doctoral studies.

The successful applicant must register at the KU Leuven Arenberg Doctoral School (<https://set.kuleuven.be/phd>).

EU Eligibility criteria for candidates (in short)

The applicant may be of any nationality.

The applicant shall at the time of recruitment be in the first four years of his/her research career and have not been awarded a doctoral degree. This is measured from the date when the applicant obtained the degree, which would formally entitle him/her to register as PhD candidate.

The applicant must not have resided or carried out his/her main activity in the country of the host institute for more than 12 months in the 3 years immediately prior to the recruitment.

Benefits

Materialise NV offers to the selected candidate to work in a stimulating and ambitious environment. The city of Leuven lies in the technological heart of Belgium and has a population of 40,000 students.

Besides this, Materialise has an excellent package of attractive benefits for employees. Assistance for finding accommodation can be given.

How to Apply

Follow the instructions at www.acoutect.eu.

APPLY NOW! Application open from February 1st 2017. The evaluation process of the applications will start from April 1st 2017.

Questions regarding this position: info@acoutect.eu.