

PhD Position in Experimental micro-mechanics applied to cultural heritage

Are you an engineer fascinated by cultural heritage? Do you want to work in an exciting multidisciplinary team? Looking for a talented and enthusiastic PhD candidate to work on a challenging experimental micro-mechanics project to characterize the aging response of oil paints.

Job Description

- NUANCES (An integrated numerical-experimental approach to predict aging of oil paintings) is a challenging research project funded by the Dutch Research Council (VIDI Talent Scheme Grant). We are currently building a team of talented and enthusiastic researchers to work on this exciting research program.
- An enormous percentage of oil paintings in museum collections, ranging from the sixteenth century to the present time, suffers from different types of chemo-mechanical deterioration phenomena. These are due to complex chemical processes that occur spontaneously as the paintings age and may ultimately affect the integrity and longevity of the painted surfaces.
- The goal of this PhD project is to unravel the origin of the changes in the chemo-mechanical response of oil paintings through time, by means of advanced experimental methodologies framed in the context of experimental micro-mechanics.
- You will work in the chair of Applied Mechanics, Department of the Built Environment, under the supervision of dr. Emanuela Bosco, dr. Johan Hoefnagels and prof. Akke Suiker. The chair of Applied Mechanics is responsible for education and research in the field mechanics, working on multi-scale, multi-physics and optimization problems related to the built environment. The chair is a member of the Graduate School on Engineering Mechanics, Netherlands. This graduate school offers the PhD students an advanced training program in the field of Engineering Mechanics, of which the core is formed by a joint series of advanced graduate courses that are closely connected to state-of-the-art research themes.
- You will carry out the experiments at the Multiscale Mechanics Laboratory, Department of Mechanical Engineering and the Building Physics and Services Laboratory, Department of the Built Environment. The Multiscale Mechanics laboratory, led by dr. Johan Hoefnagels, bridges the gap between traditional materials science and mechanical characterization labs, by integrating micro-mechanical testing with real-time and in-situ microscopic observation. The Building Physics and Services laboratory has a large experience in research projects related to environmental monitoring for museums.
- You will closely interact with a numerical PhD student, who will develop a computational model that simulates the time-dependent degradation of paints as a function of the most critical chemical and physical processes.
- The project is embedded within NICAS (Netherlands Institute for Conservation, Art and Science), and received the support of important national and international museums and cultural heritage institutions (Rijksmuseum NL, CBC – Conservazione Beni Culturali, The Getty Conservation Institute, ...).

Job Requirements

- A talented, motivated and enthusiastic researcher. Analytical skills, initiative and creativity are highly desired.
- A MSc-degree in Mechanical Engineering, Civil Engineering, Physics or Materials Science, or equivalent degrees.
- Interest to work in an interdisciplinary project that applies a mechanics mindset to the field of cultural heritage.
- A strong background in mechanics of materials is required. Experience in experimental (micro-)mechanics is of benefit. Knowledge on chemistry is a plus.
- Excellent oral and writing skills in English.

Conditions of Employment

- A meaningful job in a dynamic and ambitious university with the possibility to present your work at international conferences.
- A full-time employment for four years, with an intermediate evaluation after 9 months.
- To support you during your PhD and to prepare you for the rest of your career, you will have free access to a personal development program for PhD students ([PROOF program](#)).
- A gross monthly salary and benefits in accordance with the Collective Labor Agreement for Dutch Universities.
- Additionally, an annual holiday allowance of 8% of the yearly salary, plus a year-end allowance of 8.3% of the annual salary.
- A broad package of fringe benefits, including an excellent technical infrastructure, moving expenses, and savings schemes.
- [Family-friendly initiatives](#) are in place, such as an international spouse program, and excellent on-campus children day care and sports facilities.

More information

Do you recognize yourself in this profile and would you like to know more? Please contact Dr. Emanuela Bosco, e.bosco@tue.nl

For information about terms of employment, please contact hrservices.be@tue.nl

Please visit www.tue.nl/jobs to find out more about working at TU/e!

Application

We invite you to submit a complete application by sending it to dr. Emanuela Bosco, e.bosco@tue.nl. The application should include a:

- Cover letter in which you describe your motivation and qualifications for the position.
- Curriculum vitae, including a list of your publications and the contact information of three references.
- Brief description of your MSc thesis.

We look forward to your application and will screen it as soon as we have received it. Screening will continue until the position has been filled.