SEAHA CENTRE FOR DOCTORAL TRAINING IN SCIENCE AND ENGINEERING IN ARTS HERITAGE AND ARCHAEOLOGY

## SEAHA Studentship
## 'Wet walls': Developing 4D moisture survey techniques for historic buildings

The EPSRC Centre for Doctoral Training in Science and Engineering in Arts, Heritage and Archaeology at University College London, University of Oxford and University of Brighton (www.seaha-cdt.ac.uk), in collaboration with Historic Scotland and Consarc Design group, are seeking applications for one fully funded studentship on the topic "Wet walls: Developing 4D moisture survey techniques for historic buildings". Funded by the Engineering and Physical Sciences Research Council (EPSRC) through the Centre for Doctoral Training and co-funded by Historic Scotland, the four year doctoral research programme will be supervised jointly by University of Oxford School of Geography and the Environment (http://www.geog.ox.ac.uk/), Historic Scotland Conservation Science Group (http://www.historic-scotland.gov.uk/index/heritage/technicalconservation.htm), and Consarc design Group (www.consarc-design.co.uk).

Moisture ingress is a serious problem for many historic buildings, as it can cause severe deterioration to building materials. Whilst several specialist techniques are available to estimate moisture contents of building materials, they have generally only been used individually to provide 2D snapshots. This project is innovative in seeking to combine three methods to visualise the spatial distribution of moisture and its temporal dynamics. Such data will improve understanding of moisture problems and enable the development of better conservation solutions. The overall aim of the project is to develop methods to combine three, complementary techniques: 2D resistivity surveys, IR thermography and microwave moisture sensors. The project will address two main research questions:

1. How do the three methods compare in terms of the data they produce about moisture distribution in walls?
2. Can we develop integrated time-lapse methods to provide useful 4D information on moisture contents using the three techniques?

The research methodology will be largely based on controlled experimentation – firstly, in the laboratory and secondly, at a series of test wall sites – in combination with numerical modelling. There will also be the opportunity to test the methods on buildings in Scotland with established moisture problems. The student will work closely with heritage professionals and scientists and the exceptionally interdisciplinary nature of the project will provide excellent all-round training and preparation for a wide range of future career paths including academia, conservation and industry.

As a SEAHA student, you will enrol at UCL to complete the MRes SEAHA and then transfer to University of Oxford. You will have unparalleled access to research infrastructure and expertise across three universities and almost 50 heritage, research and industrial partners. In addition to the university doctoral training requirements, SEAHA students take part in an exciting range of cohort activities, ranging from residential events and group projects, to conferences and careers events. Please visit the SEAHA website (www.seaha-cdt.ac.uk) for details.

You will have a good first degree in a relevant discipline: preferably geographical, environmental or earth sciences, archaeology, conservation, materials science, engineering, or physics.

SEAHA is a Doctoral Training Centre at University College London (UCL), University of Oxford, and University of Brighton. SEAHA is funded by the Engineering and Physical Sciences Research Council (EPSRC).

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For further details contact Professor Heather Viles (heather.viles@ouce.ox.ac.uk).

The SEAHA Studentship will cover home fees and a stipend of up to a maximum of £16,726 per year (current rate) for eligible applicants (http://www.seaha-cdt.ac.uk/opportunities/eligibility-criteria/), and a substantial budget for research, travel, and cohort activities.

The application should include:

- A covering letter clearly stating your motivation
- The UCL graduate application form which can be downloaded via UCL's web site: http://www.ucl.ac.uk/prospective-students/graduate/apply/apply-now/ucl-graduateapplication-form.pdf
- Two academic references
- A copy of your degree certificate(s) and transcript(s) of degree(s),
- Proof of meeting the UCL English language proficiency requirements where necessary. For SEAHA candidates, an advanced level certificate is normally required (details of English language proficiency requirements can be found at http://www.ucl.ac.uk/prospectivestudents/graduate/apply/english-language/index)
- A short research proposal (max. 2000 words) written by taking into consideration the above research questions.

The award will be subject to a Grant Agreement between UCL, University of Oxford, Historic Scotland and Consarc Design Group.

The applications should not be submitted by UCL online admissions system. Instead, they should be sent directly to:

SEAHA Manager
manager@seaha-cdt.ac.uk
UCL Centre for Sustainable Heritage
Faculty of the Built Environment
UCL
14 Upper Woburn Place
LondonWC1E 0NN

UCL Taking Action For Equality.

Application deadline: 16 July 2014; interviews: 23 July 2014 (at UCL).

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