

ENGINEERING AND ART WORLD COMBINE TO PRESERVE OLD MASTERS

Engineering and art researchers have used advanced computer modelling to help preserve old works of art. Researchers at the University of Warwick and The Courtauld Institute of Art worked together on the project which shows the creative side of engineering. The results of the study including canvases, model structures and the unusual images of the 'strain maps' produced during testing and computation will go on show in an exhibition entitled *Tensioned Fabrics in art and architecture* in the Embankment Galleries at Somerset House, London WC2, from **4 to 18 March 2009** following its debut at the International Digital Laboratory, a new multi-disciplinary research centre run by WMG at the University of Warwick.

The project is based on work done by the research team led by Professor Wanda Lewis of Warwick's School of Engineering who model the stresses and strains experienced by tensioned fabric enclosures such as the Millennium Dome. The project is in collaboration with Dr Christina Young of the Conservation and Technology Department at The Courtauld Institute who specialises in measuring the physical behaviour of fabric supports such as the canvases of paintings.

Professor Lewis said: "We have developed a sophisticated computer modelling package that predicts the shape of fabric enclosures very accurately. This aspect of design affects the aesthetics, durability and function of these structures. I realised that we can apply the same modelling principles to predict the behaviour of artists' canvas which is simply a different material and structure."

Dr Christina Young, a Senior Lecturer in Paintings Conservation, explained: "When conservators restore a painting, if it is severely degraded, they may attach new fabric to the reverse. This 'lined' painting is then restretched and attached to a wooden stretcher. Ideally, this results in a painting which will be stable and safe to display for future generations.

"The Courtauld has a unique testing facility that allows paintings to be tested over the whole range of stresses and environmental conditions that they can experience. It uses a combination of mechanical testing and lasers. This facility has been developed over fifteen years in collaboration with Imperial College, Tate, and the National Gallery, London."

Professor Lewis added: "We can model every detail down to the number and position of the staples used, friction of the fabric, the effectiveness of the staples, and the detail of how the fabric is wrapped round the corner. The results of our work can bring about significant improvements in the methods of tensioning the canvas to ensure as uniform distribution of stress as possible. Jointly with the Courtauld, we aim to predict the effects of temperature and humidity on the behaviour of fabrics. We can then predict where there are potential areas of damage, avoiding the risk of disaster."

Dr Young stated: "This work will provide invaluable information to help us improve and develop structural conservation treatments for paintings on canvas. It also opens up new options for living artists by finding fabrics which are suitable for novel projects and longevity."

FACT SHEET

- Exhibition title:** *Tensioned fabrics in art and architecture*
- Venues:** 17 to 26 February 2009
International Digital Lab, University of Warwick, Coventry
- 4 to 18 March 2009**
Embankment Galleries, Somerset House, London WC2R 1LA
- Opening hours:** Daily 10 am to 6 pm, last admission 5.30 pm
- Admission:** Free
- Supporters:** This project was sponsored by AHRC and EPSRC Designing for the 21st Century.

Notes to editors:

WMG, an academic department of the University of Warwick, is a provider of innovative solutions to industry, supporting some of the most advanced research, development and training projects in the world. www.wmg.warwick.ac.uk

The Digital Lab is a multi-disciplinary research centre created and run by WMG focusing on developing digital solutions to a range of problems in industry, commerce and healthcare. www.digital.warwick.ac.uk

The Courtauld Institute of Art is one of the world's leading centres for the study of the history and conservation of art and architecture, and its Gallery houses one of Britain's best-loved collections. Based at Somerset House, The Courtauld is an independent college of the University of London. www.courtauld.ac.uk

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