

## RECOVERING POMPEII



M. Pagano

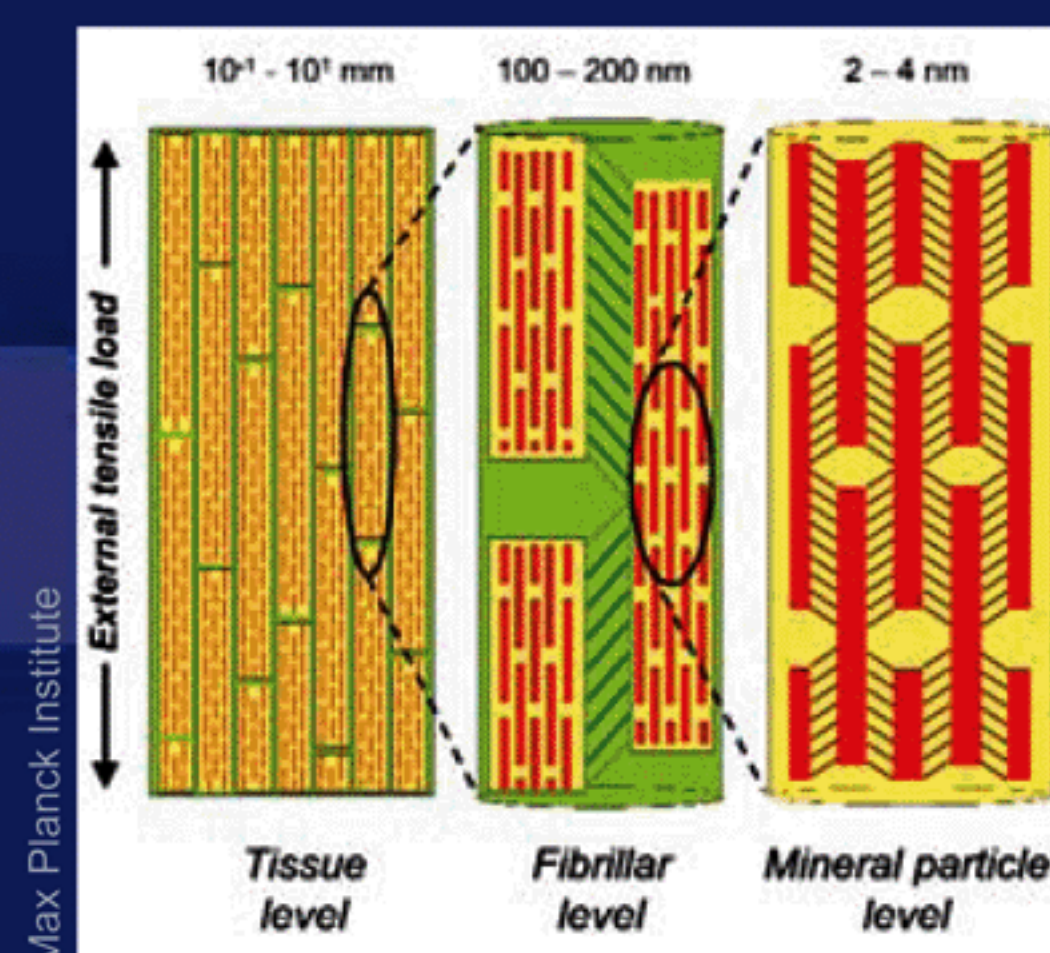
Artists in ancient Pompeii painted the town red 2,000 years ago with a brilliant crimson pigment that dominated many of the doomed city's wall paintings. Now scientists from France and Italy are reporting in the journal *Analytical Chemistry* why those paintings are undergoing a mysterious darkening. The synchrotron light of the European Synchrotron Radiation Facility (ESRF) in Grenoble (France) has provided new insight into this process and what produces it.

*Cotte M. et al, Blackening of Pompeian Cinnabar paintings: X-ray micro-spectroscopy analysis, Analytical Chemistry, 2006, 78(21) pp 7484 - 7492.*

## SCIENTISTS SEE HOW BONES RESIST STRAIN

Scientists from Max Planck Institute (Germany) and the ESRF have just discovered the way deformation at the nanoscale takes place in bones by studying it with synchrotron X-rays. This study explains the enormous stability and deformability of bones. The hierarchical structure of bones makes them able to sustain large strains without breaking, despite being made of essentially rigid units at the molecular level.

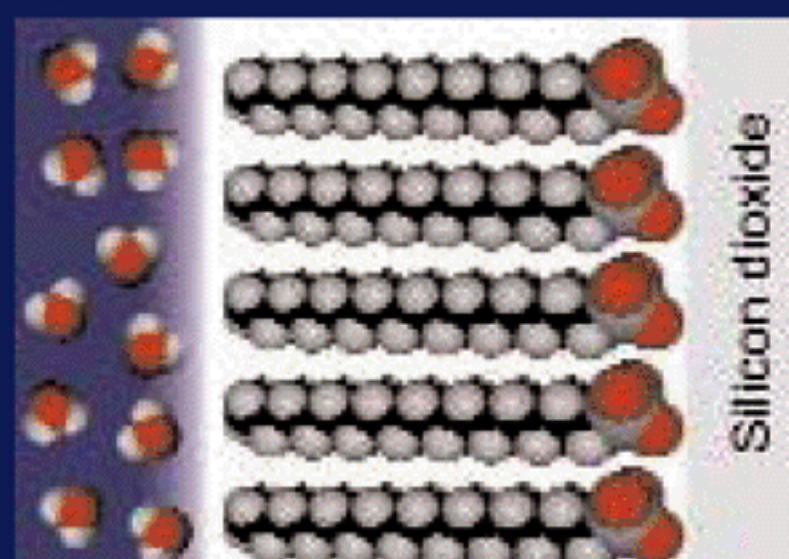
*Gupta H.S., et al, Cooperative deformation of mineral and collagen in bone at the nanoscale, PNAS, November (2006).*



Max Planck Institute

## MIND THE GAP

RESEARCHERS STUDY A GAP ON HYDROPHOBIC SURFACES



Max Planck Institute

Researchers have found a gap between water and a water-repelling surface that can give new insight into the way water and oil separate. By using high-energy X-rays at the ESRF, an international team defined the size and characteristics of this gap. The knowledge of the structure of a hydrophobic interface is important because they are crucial in biological systems, and can give insight in protein folding and stability.

*Mezger et al, High-resolution in situ X-ray study of the hydrophobic gap at the water-octadecyl-trichlorosilane interface, PNAS published November 20, 2006.*

## ESRF REVEALS HOW NEANDERTHAL TEETH GREW

Scientists from the United Kingdom, France and Italy have studied teeth from Neanderthals with X-rays from the European Synchrotron Radiation Facility (ESRF). They found that the dental development of Neanderthals is very similar to modern humans.



A. Mazurier and L. Bondioli

*Macchiarelli et al., How Neanderthal molar teeth grew, Nature online, 22 November 2006.*

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## EVENTS

THE NEXT ESRF USERS' MEETING WILL BE HELD FROM 6-8 FEBRUARY 2007 AT THE ESRF IN GRENOBLE. THREE SATELLITE WORKSHOPS WILL BE ORGANIZED AROUND IT.

THE 2007 USERS' MEETING WILL BE LARGELY DEVOTED TO THE PRESENTATION AND DISCUSSION OF THE UPGRADE PROGRAMME FOR THE FACILITY. THESE WILL INCLUDE DETAILED PROJECTS BOTH FOR BEAMLINES, AND FOR THE MACHINE.

<http://www.esrf.fr/events/conferences/usersmeeting2007>

ESRF, BP 220, F-38043 Grenoble Cedex 9, FRANCE, Tel.+33 476 88 20 00, [www.esrf.fr](http://www.esrf.fr)