

E I N L A D U N G

zum

V O R T R A G

von

Ilaria Paganoni, MSc.

Università di Bologna, Scuola di Scienze
Master Degree Course in Science for the Conservation-Restoration of Cultural Heritage

Parchment Degradation: Artificial Ageing Experiments for the Study of Medieval Manuscripts

Donnerstag, 24. Jänner 2019, 17:30 Uhr

Akademie der bildenden Künste, Augasse 2-6, 1090 Wien

Hörsaal C 4.40
(Kern C, 4. Stock)

Parchment Degradation: Artificial Ageing Experiments for the Study of Medieval Manuscripts

Ilaria Paganoni, MSc.

Università di Bologna, Scuola di Scienze
Master Degree Course in Science for the Conservation-Restoration of Cultural Heritage

Abstract

Ancient parchments have an extraordinary historical and artistic value as they preserve in the form of scrolls, manuscripts, and codices most of the intellectual heritage of the Western world from the Classical age to the Renaissance. Deepening the knowledge about the structure of this supporting material and its deterioration helps to safeguard these artworks and the historical value. It is therefore important to identify the main degradation agents and their effects towards the material in order to accurately evaluate the state of conservation and design the more appropriate approach for their preservation, exposition, storage, or for any restoration treatment.

The degradation of parchment is caused by deterioration mechanisms effecting its structural main component collagen and its degradation can be accessed at different levels: starting from the molecular up to the macroscopic level at which alterations of the hierarchical structure can occur. If the collagen molecules break down, the structural hierarchy will be lost, inducing the weakening of the material.

This thesis project had the aim to study the main degradation processes occurring during parchment ageing, trying to characterize the contribution of the main degradation factors such as sunlight, temperature, humidity, and exposure to chemical pollutants.

The three major degradation processes of parchment as oxidation, hydrolysis, and gelatinization were simulated by performing accelerated ageing experiments. The proteinaceous material was subjected to laboratory-controlled ageing applying artificial sunlight, heat, relative humidity (RH %), and sulfur dioxide (SO₂).

When dealing with studies on ancient manuscripts no sampling is allowed. Therefore, in this project the study and the evaluation of parchment's state of conservation was done by means of non-invasive and/or non-destructive analytical techniques. The most commonly used are Infrared spectroscopy in ATR acquisition mode (FTIR-ATR), Raman spectroscopy, and spectrophotometry for color measurements.

CV

In 2015 Ilaria Paganoni obtained her Bachelor degree in “Science and Technologies for the Study and the Conservation of Cultural Heritage” at the University of Milano (IT), conducting a research on the characterization of natural and synthetic ultramarine blue pigments by means of optical and elemental techniques. Afterwards she applied for a Master program at the University of Bologna, Ravenna (IT) during which she was involved in a student-exchange program and she could establish a co-operation between the Bologna University and the Institute for Natural Sciences and Technology in the Arts (ISTA) of the Academy of Fine Arts in Vienna. During the work at the ISTA she was dealing with parchment degradation studies applying non-destructive analytical methods as infrared and Raman spectroscopy, and spectrophotometry for color measurements. The research conducted awarded her with the achievement of her Master degree in “Science for Conservation and Restoration of Cultural Heritage (SCORE)” which she obtained with distinction in December 2018.