



**FLORIANA COPPOLA**

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**POSITION:**

PhD Candidate:

**University of Bologna “Alma Mater Studiorum”, Department of Chemistry  
‘G.Ciamician’, SSD: CHIM/02**

**Doctoral Thesis Title:** Investigations of the kinetics and effects of degradation of paper-based materials

**Abstract:** The proposed doctoral thesis deals with kinetics and effects of paper degradation, investigating this inevitable process from three different points of view. The former aspect is concerned with comparison between the degradation rates of recycled and non-recycled contemporary paper, to understand whether and how they differ. The second topic describes the current conditions and predictions of future scenarios for the historical book collections of the *Classense Library* (Ravenna). The data supplied by an innovative non-destructive spectroscopic technique were elaborated and combined with findings recently reported in the literature on the characterisation and degradation of historical paper. Finally, the effects of  $\gamma$ -irradiation as a treatment for mass disinfection of paper against fungi and microorganisms were evaluated through measurements of degree of polymerisation, colour and mechanical properties.

**EDUCATION:**

11/2015 – 10/2018: PhD Student at:

**University of Bologna “Alma Mater Studiorum”, Department of Chemistry  
‘G.Ciamician’**

**Research Activity:** Accelerated ageing of paper-materials; Non-destructive library condition survey; Relationship between environment and cultural heritage; Environmental risk analysis. **Laboratory activities:** viscometry, cold extraction, FTIR spectroscopy, colorimetry and ageing experiments.

02/2017 – 08/2017: Visiting research student at:

**University College of London, Institute for Sustainable Heritage, London (UK)**

**Research Activity:** Degradation and characterization of contemporary papers (recycled and not) as a part of a broader project including Islamic and Chinese paper; collaboration for an innovative condition survey of an historical Italian collection. **Laboratory activities:** viscometry; fibre furnish analysis; Lignin analysis; cold extraction; colorimetry.

11/2012 – 12/2014: Master’s degree (first class honours) in Environmental Assessment and Management

**University of Bologna “Alma Mater Studiorum”, Ravenna Campus (Italy)**

Main Studies:

- Atmospheric Pollutants Transportation and Dispersion Processes
- Chemical Analysis
- Multivariate Statistical Analysis

**Master’s Thesis Title:** Microclimate analysis and an environmental risk assessment for the indoor halls: the case of study of *Classense Library*

**Abstract:** The analysis of the environment that surrounds the paper materials, as well as all other heritage materials, is a need for their preventive conservation. This research consisted in a microclimatic investigation and a development of a new relative risk assessment methodology. Temperature, relative humidity and the concentration of NO<sub>2</sub> and O<sub>3</sub> were measured in four halls of the *Classense Library* (Ravenna). The I/O ratio and the air exchange rates were estimated. The relative risk assessment methodology proposed considers the microclimatic parameters as risk factors and the paper materials as targets, was also applied to the monitored halls of the Library.

10/2008 – 07/2012: Bachelor's degree (first class honours) in Environmental Science  
**University of Naples "Parthenope" (Italy)**

Main Studies:

- Physics
- Chemistry
- Meteorology
- Oceanography
- Microbiology

**Bachelor's Thesis Title:** Techniques for seismic and bathymetric data acquisition and processing from the Strait of Bonifacio

2003 – 2008 Secondary school specializing in classic studies  
**'Liceo G. Garibaldi' of Naples, ITALY**

## PUBLICATIONS:

Coppola F., Modelli, A., Strlič, M., Andretta, M. and Scagnolari, F. *Cellulose*, **25** (2018) 5337-5347: "Kinetics of degradation of non-recycled and recycled contemporary paper".

<https://doi.org/10.1007/s10570-018-1951-8>

Coppola, F., Fiorillo, F., Modelli, A., Montanari M. and Vandini, M. *Polymer Degradation and Stability*, **150** (2018) 25-30: "Effects of  $\gamma$ -ray treatment on paper".

<https://doi.org/10.1016/j.polymdegradstab.2018.02.004>

Andretta, M., Coppola, F., Modelli, A., Seccia, L. and Santopuoli, N. *Journal of Cultural Heritage*, **23** (2017) 22-32: "Proposal for a new environmental risk assessment methodology in cultural heritage protection".

<http://dx.doi.org/10.1016/j.culher.2016.08.001>

Andretta, M., Coppola, F. and Seccia, L. *Journal of Cultural Heritage*, **17** (2016) 75-86: "Investigation on the interaction between the outdoor environment and the indoor microclimate of a historical library".

<https://doi.org/10.1016/j.culher.2015.07.002>

Scopus ID: [56698023800](https://scopus.com/authorid/56698023800)

QR code [ORCID](https://orcid.org/)



## CONTRIBUTIONS TO INTERNATIONAL CONFERENCES:

Poster presentation '**Kinetics of degradation of non-recycled and recycled contemporary paper**' at the XLVI National meeting of the Physical Chemistry Division of the Italian Chemistry Society held at the University of Bologna (Bologna, Italy), 25-28 June 2018.

Oral communication '**Non-destructive survey of the Classense Library: Collection condition and storage scenario modelling**' at the International Conference Florence Heri-Tech – The Future of Heritage Science and technologies –held at the Palazzo dei Congressi (Firenze, Italy), 16-18 May 2018.

Poster presentation '**Investigation of the degradation of contemporary papers aged at different conditions of T and RH**' at the 3rd International Conference on Science and Engineering, in Arts, Heritage, and Archaeology held at the University of Brighton (Brighton, UK), 19-20 June 2017.

## AWARDS:

10/2015 **"Soroptimist International Club Ravenna", ITALY**  
Best master's thesis of the year award in Environmental Assessment and Management

**INTERNSHIPS:**

07/2014 - 08/2014

Classense Library  
Ravenna, ITALY

Microclimate conditions data collection in Classense: use of dataloggers, passive samplers, infrared camera and anemometer in the indoor and outdoor environments of the Library.

05/2014 - 10/2014

C.R.S.A. Med Engineering L.t.d.  
Ravenna, ITALY

Calibration and use procedures for instruments to monitor indoor environment (Temperature and Relative Humidity datalogger, luxmeter, infrared camera, passive samplers for pollutants, anemometer); Data processing (DataLogger, Testo IR Soft)

08/2012 - 09/2012

Institute for the coastal marine environment  
National Council for the Research  
Naples, ITALY

Project MaGIC0912: Oceanographic campaign on the board the Urania for seismic and bathymetric data acquisition and processing (use of Multibeam Echo Sounder, Chirp System)

12/2011 - 01/2012

Institute for the coastal marine environment  
National Council for the Research  
Naples, ITALY

Project MaGIC1211: Oceanographic campaign on the board the Urania for seismic and bathymetric data acquisition and processing (use of Multibeam Echo Sounder, Chirp System)

**WORK EXPERIENCES:**

04/2015-05/2015

University of Bologna, AlmaMater  
Bologna, ITALY

Student collaboration – 150 hours as librarian at the Department of Physic.

11/2013-11/2014

University of Bologna, AlmaMater  
Campus of Ravenna, ITALY

Paid tutoring activities offering a point of reference for Bachelor's and Master's students during their university careers.

**SKILLS:**

Computing:

European Informatics Passport (2012) – Certipass – Academia Studiorum  
Office Packages  
Graphics and Design Software – AdobePhotoshop, AutoCAD  
Data analysis software – Datalogger Graph, Testo IR, Matlab  
(beginner), R (beginner)

Languages:  
12/2016

Italian – First languages  
English – Academic IELTS Certification  
Overall Band Score: 6.5

Date

26/10/18

Signature

