UNIVERSITÀ DEGLI STUDI DI PADOVA

DiSC

Martedì **12 marzo 2019** alle ore **10:30** presso l'aula P

la **Dr. Federica Valentini**

Dipartimento di Scienze e Tecnologie Chimiche,
Università di Tor Vergata.Roma

terrà il seminario dal titolo:

New patented synthesis of non-invasive nanomaterials for preservation and conservation of paper cultural heritage.

Paper exhibits several serious damages related to the presence of heavy metals in the manuscript support (i.e.; iron-gallic inks), possible incorrect conservation procedures, humidity and temperature gradients, light sources, chemical aggressiveness of atmospheric pollutants (NO_x, SO_2, HNO_2, HNO_3 and PM10; PM2.5, present in indoor environment). Traditional preservation and conservation approaches apply chemical reagents that are, sometimes, aggressive towards paper based archival and library heritage, environmentally toxic and unsafe for "end-users" (especially restorers and scientists). Furthermore, conventional restoration products exhibit poor solubility in solvents or solvent mixtures that, in some cases, could help in the restoration procedures, as in the case of soluble inks or pigments, that cannot be treated with aqueous or ethanolic solutions. For this reason, the challenge proposed by the scientists consists in synthesizing new materials with specific features, exclusively designed for Cultural Heritage. According to this, the emerging Nanomaterials represent an excellent candidate, to apply in this field.

Nanomaterials and Nanotechnologies provide extraordinary properties such as solubility in solvents that are suitable for preserving paper, without interfere with inks and pigments. They possess amazing deacidifying activities such as calcium propanoate and calcium carbonate nanoparticles.

In this work, the main results obtained by applying these nanoparticles are reported. Their performances are significantly superior to those obtained working with the corresponding conventional materials (i.e. propanoate and calcium carbonate, traditional salts). They present, in fact, better increase in the pH values necessary to minimize the acidity of the supports, and increase the mechanical stability of the support, when they are applied to aged and damaged parchments. Furthermore, calcium nano-propanoate particles also act as efficient fungistatic agent, suitable to inhibit fungal growth (that colonize paper based cultural heritage surfaces). Moreover, the newly synthesized patented nanocollagen allowed for the solving of a very serious unsolved problem, related to the consolidation and preservation of corroded/damaged leather.

Il Direttore del Dipartimento

Alfonso Zoleo

Michele Maggini