



**Antonio Mirabile**  
**Two-day training course on Pressure Sensitive Tape removal**

The removal of pressure-sensitive adhesive tape residues from works of art imposes challenges to conservators that may not be successfully resolved through the use of established approaches and materials. Pressure-sensitive tapes, PST(s), found on artworks have various functions: they can be used as adhesive fasteners as part of a temporary conservation treatment, or be applied by the artist, being, thus, explicitly part of the artwork.

PST(s) present a multi-layered structure, composed of a pressure-sensitive adhesive and its carrier (backing). Minor components include a release coat and a primer. Backing materials may include paper, fabric, metal, cellophane, cellulose acetate and oriented polypropylene, while adhesives include natural and synthetic rubbers, acrylic or vinyl copolymers and silicones.

PST's carriers and porous substrates present a different response to changes in environmental conditions, i.e. temperature and relative humidity, causing distortions and cockling of the artwork. Degradation of both, the PST's adhesive and tape is mainly due to oxidation processes: the adhesive may change in colour and lose its structural function. Moreover, in addition to penetration of the adhesive into the porous material, they may cause migration, bleeding or inclusion of the artistic media like ballpoint pen, felt-tip pen and contemporary printing inks. Time and experience have now shown that PST(s) can be disfiguring and damaging. They are difficult, sometimes impossible to remove. Conservators are familiar with a variety of tape-removal methods including: mechanical, immersion, poultice, rolling, and suction table. However, each method has some associated risks/disadvantages, which may result in unwanted changes such as: skinning of the medium with mechanical removal, tidelines and media bleeding when suction techniques and poultices are used, media bleeding when using immersion treatments (media types that were stable during testing may start to move/solubilise in the course of treatment), and penetration of the adhesive into the porous material.

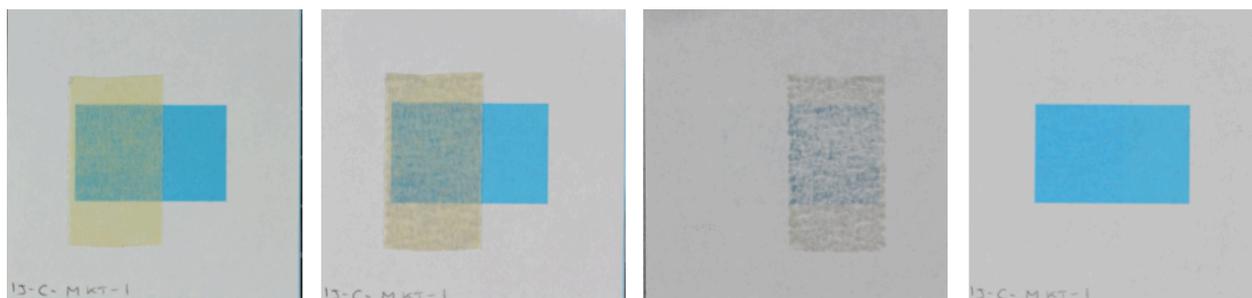


*PST rubber-based adhesive on a Lucio Fontana black ball-point pen drawing. Detail.*

Recently, several nanostructured cleaning fluids have been designed in the frame of the EU-funded project Nanorestart ( [www.nanorestart.eu](http://www.nanorestart.eu) ). These water-based cleaning systems, where organic solvents can be confined with structural control at the nanoscale, are tailored to clean surfaces of artworks. The use of these complex fluids permits to overcome many of the disadvantages of neat organic solvents, such as toxicity and solvent spreading. In addition, loading of the water-based nanostructured fluids inside hydrogels with high water-retentiveness or the use of organogels loaded with low toxicity solvents, guarantees effective PST removal.

**The training** is intended for a limited number of 8 experienced conservators invited by the hosting institution. Participants are asked to bring expendable examples if possible. The training consists of theoretical, didactical

and hands-on approach. All activities shall be performed in a conservation studio equipped with a vacuum suction table and a fume-hood.



*Light cyan ink-jet with masking tape, from left to right: before ageing, after ageing recto, after ageing verso and after tape removal.*

### General content of the training

- History, and production of PST
- Components: carrier, adhesive, primer and release coating
- Identification: chemical, physical, optical, when and why identify
- Deterioration of: paper and plastic backing, rubber and polymer based adhesives, paper substrate and artistic media
- History of PST on Cultural heritage: Dead Sea scrolls, Salce Collection (Treviso, Italy), Pompidou Center paper based collections
- Theoretical and ethical issues in PST removal
- Solvents, solubility and Health and Safety aspects
- Mechanical removal: heat, tools, solvents, local or general treatment, benefits/problems
- Innovative removal: validation protocol, testing, hydrogel, micro-emulsion, organogel, new class of solvents, benefits/problems
- Study case
- PST part of the artwork: considerations and conceivable solutions
- Evaluation of the training

**Registration Fee:** free of charge, this training is part of the dissemination activities of the Nanorestart project

**Antonio Mirabile** is a paper conservator and a consultant in preventive conservation. He works regularly for the Musées de France, mainly with architecture and contemporary drawings, and for the contemporary drawings collection of the Fondation Guerlain. As UNESCO expert he worked in various paper conservation projects in Yemen, Egypt, Mongolia, DPRK, Uzbekistan and Mauritania. Today he shares his professional activities between UNESCO missions, preventive conservation assignments, paper conservation treatments and scientific research, in particular with the University of Florence, where he is involved in the development of innovative methods for the improvement of conservation treatments. Since 2006 he started to cooperate with conservators in Brazil, where he teaches paper conservation and preventive conservation via short trainings and master classes. He is the author and co-author of about 30 articles and wrote two handbooks published by UNESCO. He is an active member of INCCA, ICOM and the Blue Shield.



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