

3.6.2024

Progetto DIAGNOSE

DIAGnositica NON invaSiva e conservazione di dagHerrotipi e altri materiali fotografici

Museo Galileo

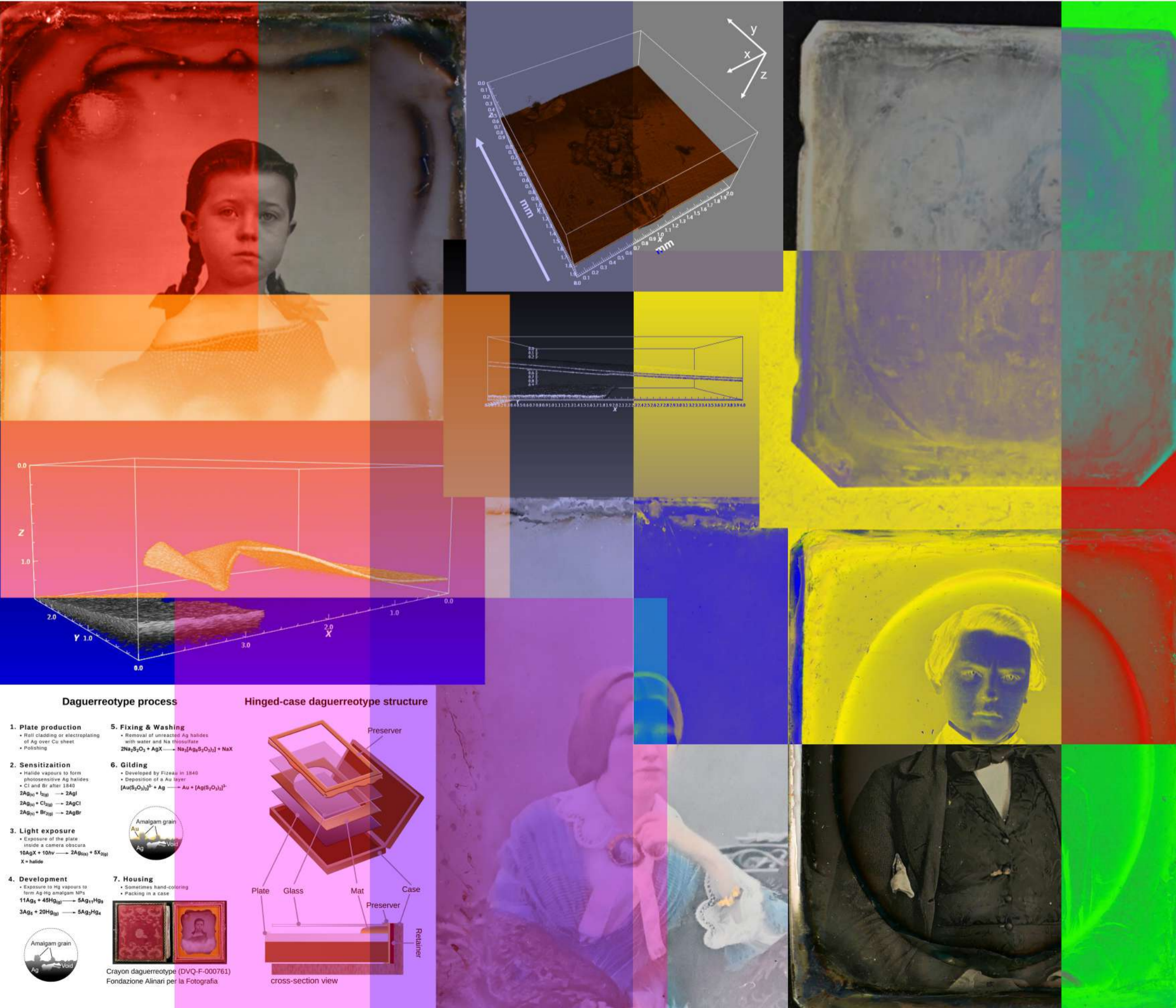
Piazza dei Giudici 1
Firenze

Giornata di studio sulle tecnologie laser e altri metodi innovativi per la caratterizzazione e la conservazione dei materiali fotografici e d'arte moderna



Regione Toscana

GIOVANI SI



Daguerreotype process

- 1. Plate production**
 - Roll cladding or electroplating of Ag over Cu sheet
 - Polishing
- 2. Sensitization**
 - Halide vapours to form photosensitive Ag halides
 - Cl and Br after 1840
$$2Ag_{(s)} + I_{2(g)} \rightarrow 2AgI$$

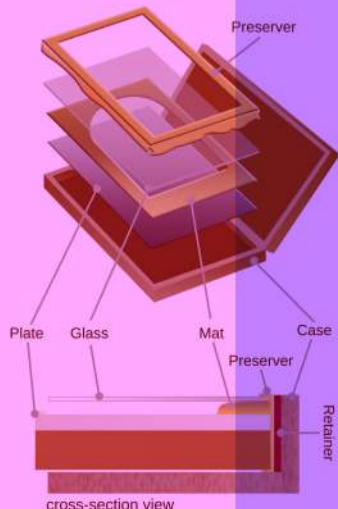
$$2Ag_{(s)} + Cl_{2(g)} \rightarrow 2AgCl$$

$$2Ag_{(s)} + Br_{2(g)} \rightarrow 2AgBr$$
- 3. Light exposure**
 - Exposure of the plate inside a camera obscura
$$10AgX + 10h\nu \rightarrow 2Ag_{(s)} + 5X_{(aq)}$$

X = halide
- 4. Development**
 - Exposure to Hg vapours to form Ag-Hg amalgam NPs
$$11Ag_{(s)} + 48Hg_{(g)} \rightarrow 5Ag_{11}Hg_8$$

$$3Ag_{(s)} + 20Hg_{(g)} \rightarrow 5Ag_2Hg_4$$
- 5. Fixing & Washing**
 - Removal of unreacted Ag halides with water and Na thiosulfate
$$2Na_2S_2O_3 + AgX \rightarrow Na_2[Ag_2S_2O_3] + NaX$$
- 6. Gilding**
 - Developed by Fizeau in 1840
 - Deposition of a Au layer
$$[Au(S_2O_3)_2]^- + Ag \rightarrow Au + [Ag(S_2O_3)_2]^-$$
- 7. Housing**
 - Sometimes hand-coloring
 - Packing in a case

Hinged-case daguerreotype structure



Crayon daguerreotype (DVQ-F-000761) Fondazione Alinari per la Fotografia