

A multi-analytical characterization of French paper

negatives: how to see through many processes?

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Photographic negative images on paper are certainly the earliest types of photographs ever produced, giving access to multiple prints of a same image using a unique matrix. As early as 1841 in France, many variants of the paper negatives processes have been developed by skilled chemists and photographers covering a wide spectrum of practical and aesthetic concerns. Nowadays, due to their inherent historical and esthetical values, those negatives are getting an increasing interest from the art and museum community. However their materiality has been less studied than positive images despite a large variety of processes and post-treatments involving many different chemicals and organic coatings; limiting our possibilities of identification, attribution or even preservation.

The aim of this work was to develop a methodology to better assess the way those images were produced based on physical or chemical characteristics. A non-invasive approach combining optical, vibrational and X-Ray spectroscopies is implemented on a collection of 50 historical images between 1841 and 1860 from French collections. Working with non-invasive reflectance FTIR on such paper prints shows great potentiality in revealing the presence of organic coatings such as gelatin or wax. Besides, a survey is carried out on these negatives to provide a series of relevant dimensional and morphological data (dimensions, weight, paper texture, etc). The power of multivariate analysis is demonstrated first on each spectroscopic data set, and then using methods that combine data of different dimensions. With this effective statistical approach, it is possible to correlate the physical, chemical and dimensional characteristics to particular photographic practices, and highlight relationships between different makers.