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**The use of SEM for architectural heritage: study of morphology surface through image analysis.
First results on the comparison between black crusts from Venice and New York**

Manuela Sgobbi, Elisabetta Zendri, Guido Biscontin
University Ca' Foscari, Venice, Italy

The causes of the chemical and physical decay of limestone exposed in anthropic environment are well known, as an extended bibliography attests. The composition and the morphology of the deposit-decay layers on the stone has been studied using different techniques, like for examples SEM, FT-IR, Raman or XRD spectroscopy. In the present study, electron microscopy has been used to realize a set of images of the different type of surfaces, with the aim to find impartial parameters to describe the morphology of the black crusts coming from Venice and from New York. The two-dimensional images realized by SEM are connected with the image analysis, using fast Fourier transform and the measure of fractal dimension, in order to distinguish the different morphology and composition of the deposit in the two environmental conditions.