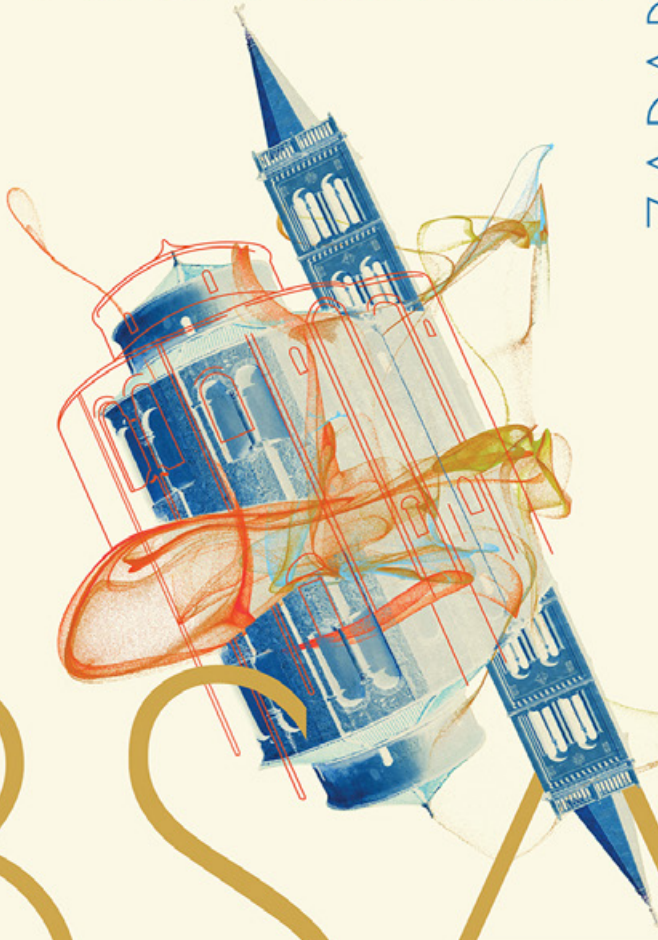
9th BALKAN SYMPOSIUM OF ARCHAEOMETRY



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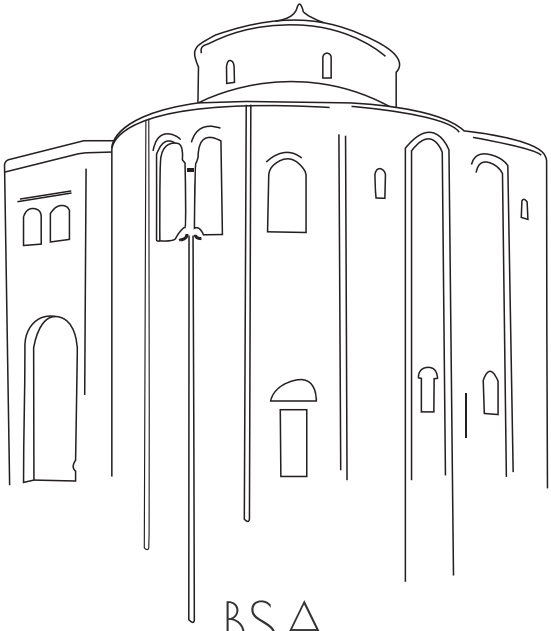

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BOOK OF ABSTRACTS
Zadar 2024

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KEYNOTE PRESENTATION

4. VARIOUS ANALYSIS / MATERIAL CHARACTERIZATION (CERAMICS, METALS, GLASS, VITREOUS MATERIALS, LITHICS, STONES, PIGMENTS, MORTARS, ORGANIC RESIDUES)

Fresco Painting of St. George monastery in Old Ras, Serbia

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Keywords: *The monastery St. George, Fresco fragments, spectroscopy, petrography*

The monastery St. George, in the center of Old Ras (Serbia), founded by Stefan Nemanja, the Serbian Grand, was fresco painted until the end of 1175. This church is considered to be the prototype of a stylistic group in the architecture of medieval Serbia called the "Raška school". The exonarthex is attributed to the time of King Dragutin (1276-1282), Nemanja's great-grandson and the second founder of the monastery. Fresco fragments are collected on several occasions of restauration and archaeological excavations of the church during 20th century. About thirty fragments were analysed by means of energy dispersive x-ray spectroscopy, scanning electron microscopy with energy dispersive x-ray spectroscopy, optical microscopy, Raman spectroscopy and petrography.

Most of the mortars are composed of two layers, the lower one - made of lime with the addition of minimal amount of sand and straw or some other organic material and upper - made of lime. On optical microscopy of cross sections, it can be seen the boundary line between mortar and the

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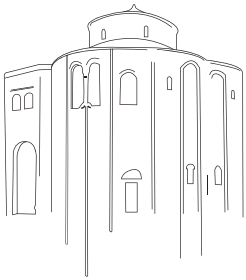
pigment and the fable appearance of the dissolved lime under the pigment layer, indicating lime painting technique. Identified pigments, habitual for this period, comprise earth pigments like ochre, burnt ochre, and hematite used for different nuances from yellow to red and brown, with addition or not of red cinnabar. Green pigment was also identified as an earth pigment, while black is made of charcoal. Lime was used for the white colour. Two kinds of blue pigments, lapis lazuli and azurite were identified by Raman spectroscopy.

By combining different instrumental methods, the painter's technique and pigments used for the frescoes were revealed.



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