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24-28 June 2024

Athens | Greece

Zappeion Megaron

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BOOK OF ABSTRACTS

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Welcome to EXRS-2024 in Athens, Greece!

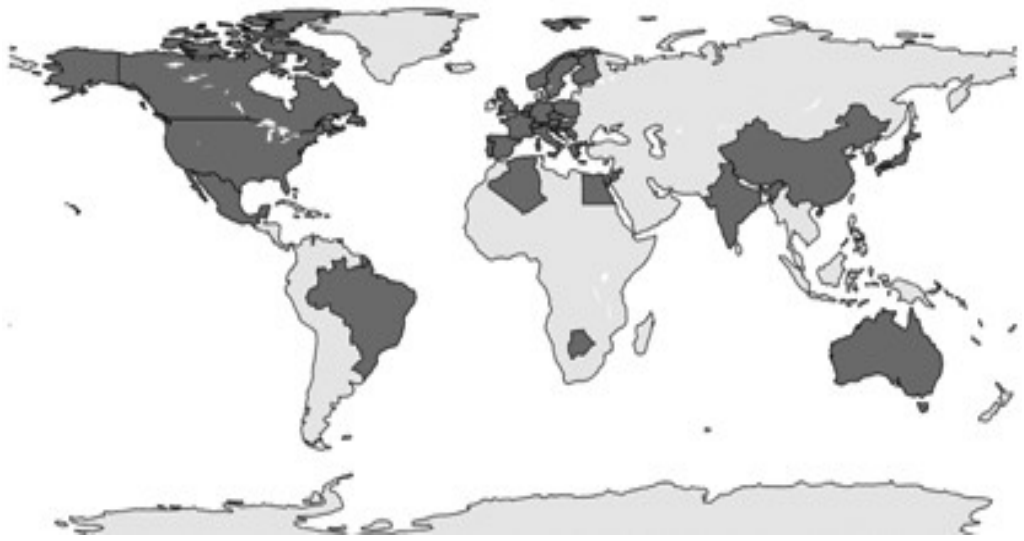
The European X-ray Spectrometry Conference is a biennial conference series inaugurated in 1984 in Goteborg. Ever since it has become a traditional meeting for European and non-European scientists working in X-ray Spectrometry or using one of its numerous techniques and represents an exciting discussion forum for basic research and applications of X-ray spectrometry in a rich variety of scientific and technological fields. The scientific program consists of keynote lectures delivered by distinguished scientists, oral presentations and poster contributions by the participants, and an Industrial Exhibition, including technical presentations given by the sponsors.

The 2024 edition of the EXRS conference will take place in the Zappeion Megaron in Athens, Greece, organized by the Institute of Nuclear and Particle Physics of the National Centre for Scientific Research, "Demokritos". The Zappeion Megaron is a large, palatial building next to the National Gardens of Athens in the heart of Athens, designed (1888) with the inspiration to symbolize the rebirth of the spirit of ancient Greece and the revival of the Olympic Games.

The great vitality of scientific and technical research in X-ray spectrometry is evident from the substantial number of participants (approximately 300) and abstracts received (around 260) from individuals representing **more than 30 countries** worldwide. Once again, the amazing participation of representatives from industrial vendors and the number of official exhibitors (22) clearly indicates that new technological innovations in X-ray Spectrometry drive the applicability of related products to support emerging social and industrial needs for sustainable development.

In addition to the rigorous academic schedule featuring ten invited speakers, 103 oral presentations by participants, 13 technical presentations by vendors, and 140 poster

EXRS-2024 Geographical Distribution of Participants



presentations, the organizing committee has also arranged an engaging program of social activities for both participants and their guests.

We extend our heartfelt gratitude to our sponsors and everyone who assisted in organizing this event. We hope you enjoy the conference in a stimulating and friendly atmosphere, and we thank you all for your participation.

Welcome to Athens!

Andreas Karydas and **Dimitrios Anagnostopoulos**

Chair and Co-chair of EXRS-2024, on behalf of the Organizing Committee

The uncovered Dvorine church wall paintings

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Situated on the northern slopes of the Venčac mountain, approximately 100 kilometres south of Belgrade, the Dvorine site contains the remnants of a monumental medieval church. In 2016, archaeological digs began that yielded remarkable discoveries, mainly thousands of fresco pieces, but also marble doorsteps. The church, which dates to the middle of the 14th century, was constructed in a style that is typical of the region several hundred kilometres south. The closest similarities may be found at the Gračanica monastery (UNESCO list) and the Holy Archangels at Prizren. Fresco paintings were depicted in the best artistic style of the time. This sacred building was never completed, but based on its size and grandiosity the church is more like a royal endowment than a local lord church. The church was deserted soon after construction was stopped and used as a cemetery for the local population. Sadly, historical sources do not confirm this church.

Because of this, an EDXRF analysis of the samples from fresco paintings was carried out in order to identify the pigments used for wall decoration and eventually to confirm presence of the exclusive pigments. In that way, comparison of the gained results with thise from other churches from the era could provide additional light on the matter. The milli beam EDXRF spectrometer with Rh anode and Si-PIN detector was used. The red and yellow ochre, as well as green earth, was detected as the most abounded pigments. Besides, the usage of vermilion was confirmed. Some green parts were painted using copper-based pigment, while white parts were painted with chalk. Identified pigments are commonly used for wall decoration in the churches from that period but additional analysis will reveal more data and generate usefull knowledge regarding fresco paintings in Serbian churches.