

22nd NARECOM – NAnoEnviCz REsearch COmmunity Meeting

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**Nanomaterials protect our cultural heritage**

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**Abstract:**

From the vast field of application of nanomaterials in the protection of our cultural heritage artifacts,the present lecture covers the very important cleaning and protection of their surfaces. We developed a novel method for the preparation of cleaning mixtures based on microemulsions and micellar solutions suitable for the removal of a range of target species, such as polymers, oils, waxes, and remnants of previous restoration treatments. These agents are efficient without any threat to the treated object or the environment. Due to the modular approach, the method is universal and easy to scale up. The cleaning mixtures can be easily incorporated into gels, which often substantially facilitates their application.

The developed products allowed another problematic step to be resolved in the protection of sandstone and limestone buildings and statues, namely the hydrophobization of their surfaces. This restoration intervention often leads to a change in the stone’s appearance and makes the following treatments difficult to impossible. Our novel method, certified by the Ministry of Culture of the Czech Republic, solved this issue in a very effective way.

As the developed techniques and products are attractive for artists-restorers, they will be included in the portfolio of the newly established spin-off company ‘SciCare-Innovations, which is expected to start its operation in spring 2023.

**Graphical Abstract:**

