**PANNA**

**Project ID:** 282998  
**Funded under:** FP7-NMP

**Plasma And Nano for New Age “soft” conservation**

**From** 2011-11-01 to 2014-10-31, closed project

### Project details

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<th><strong>Total cost:</strong></th>
<th><strong>EUR 2 832 072.73</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>EU contribution:</strong></td>
<td><strong>EUR 2 136 495</strong></td>
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<tr>
<td><strong>Coordinated in:</strong></td>
<td><strong>Italy</strong></td>
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<tr>
<th><strong>Topic(s):</strong></th>
<th><strong>ENV-NMP.2011.2.2-5 - Development of advanced compatible materials and techniques and their application for the protection, conservation and restoration of cultural heritage assets. Call Jointly Implemented with ENVIRONMENT</strong></th>
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</table>
| **Call for proposal:** | **FP7-ENV-NMP-2011**  
**See other projects for this call** |
| **Funding scheme:** | **CP - Collaborative project (generic)** |

### Objective

The main objective is to develop a novel atmospheric plasma technique for surface cleaning and coating deposition as well as two innovative coatings: a self-diagnostic protective coating and a coating provided with identification marker.

The project aims at integrating the new plasma cleaning/deposition technique and the new coatings in a “full-life” protocol spanning surface cleaning and pre-treatment, deposition of protective and identification coatings, and complete removal of coatings.

The plasma technique is proposed for surface cleaning and coating removal as alternative or complementary to the other non-contact techniques such as laser. This technique is characterized by no thermal heating, selectivity, chemical reduction of oxides, applicability on all substrates and competitive costs.

The self-diagnostic coatings provide a long-lasting solution with an added value of easy and instant diagnostic of coating functionality through a nano-technological approach, reducing monitoring costs and time with no impact on tourist accessibility.

The identification marker coating allows using nanotechnologies to obtain a transparent authenticity proof and cataloguing label.

The compatibility of the new materials with the substrates is guaranteed intrinsically by their integration in the “full-life” protocol because it ensures its complete reversibility. The protocol is applicable on all substrate materials principally as preventing conservation, in the project its validation is proposed on metal substrates (silver and bronze) and on mural paintings, limestone and sandstone.

The project also aims at implementing a demonstrator of the entire “full-life” protocol, which will be used for training cultural operators in organised events and fairs.

An added value is also the strong participation of SME’s as conservation operators and as technological companies, which ensures the possibility of scaling up and placing the new products on the market.

### Related information

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<th><strong>Result In Brief</strong></th>
<th><strong>Safer art restoration and cleaning</strong></th>
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<td><strong>Report Summaries</strong></td>
<td><strong>Final Report Summary - PANNA (Plasma And Nano for New Age “soft” conservation)</strong></td>
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</table>
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Subjects
Materials Technology

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