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## D7.10 – Open Conference Oslo

### Project Information

<b>Grant Agreement Number</b>	646178
<b>Project Full Title</b>	Nanomaterials for conservation of European architectural heritage developed by research on characteristic lithotypes
<b>Project Acronym</b>	NANO-CATHEDRAL
<b>Funding scheme</b>	NMP-21-2014 Materials-based solutions for protection or preservation of European cultural heritage
<b>Start date of the project</b>	June, 1 2015
<b>Duration</b>	36 months
<b>Project Coordinator</b>	Andrea Lazzeri (INSTM)
<b>Project Website</b>	www.nanocathedral.eu

### Deliverable Information

<b>Deliverable n°</b>	D45
<b>Deliverable title</b>	Open Conference in Oslo
<b>WP no.</b>	7
<b>WP Leader</b>	WIED
<b>Contributing Partners</b>	Oslo Opera House (DNO)/ Statsbygg
<b>Nature</b>	Websites, patents filing, etc.
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<b>Reviewers</b>	Lisa Bregoli, Johannes Nilssen.
<b>Contractual Deadline</b>	June 30 2017
<b>Delivery date to EC</b>	July 11 2017

### Dissemination Level

PU	Public	✓
PP	Restricted to other programme participants (incl. Commission Services)	
RE	Restricted to a group specified by the consortium (incl. Commission Services)	
CO	Confidential, only for the members of the consortium (incl. Commission Services)	



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## Document Log

Version	Date	Author	Description of Change
01	30.06.2017	Resty Garcia	



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## 1 INTRODUCTION

The Open Conference in Oslo is a foreseen activity in the research project. It was due to month 25 of the project milestones and deliveries. It was organized for a wider dissemination to the interested public with the involvement of local press and other media.

The Open Conference in Oslo was held in Scene 2, Oslo Opera House. A total of 14 speakers were invited in the conference. The speakers were both partners from the Nano Cathedral project and other local Norwegian institutions. There were also participants from Denmark and Sweden in addition to the local guests from different parts of Norway.



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## 2 GENERAL INFORMATION

### 2.1 Title:

Nano Technology Applications in a Northern Scandinavian Setting, Oslo Opera House

### 2.2 Date:

June 7, 2017

### 2.3 Location:

Scene 2, Oslo Opera House - Oslo, Norway

### 2.4 Organizers and Contributors:

The open conference was arranged for the Nano Cathedral project by Statsbygg. The Nano Cathedral partners also helped with the arrangement and as speakers in the conference. The partners are namely: WG, UNIPI, OPAE Pisa, POLIMI, TECNAN, ChemSpec, COLOR and UBAM. Other institutions and organizations who contributed as speakers in the open conference were DNO, SINTEF, University of Oslo, Technical University in Crete and the architect Snøhetta.

### 2.5 Language:

All lectures in english

### 2.6 Translation service foreseen (yes/no):

No

### 2.7 Target Audience:

The target audiences were students, producers, research institutions, restorers, conservators and property managers.

### 2.8 Number of participating people:

100 people

### 2.9 How were participant invited?

Statsbygg website, email and Questback

### 2.10 Used communication tools for workshop visibility/publicity:

Statsbygg website and posters, Nanocathedral website



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### **3 DESCRIPTION OF OPEN CONFERENCE**

#### **3.1 Objectives and description of the event:**

The goal of the open conference was to promote the research project Nano Cathedral in Norway. The status, activities, results and lessons learned was presented. The conference also aimed to create discussions and network with other relevant institutions in Norway and other Scandinavian countries. The speaker included the partners and experts in the Nano Cathedral project. Other significant speakers were experts that were involved in relevant projects in Statsbygg. The architect of the Oslo Opera House in Oslo, Snøhetta was also invited to speak.

The venue of the open conference gave the participants the opportunity to visit the playground and trial areas related to the activities in the research project. The open conference is part of the Nano Cathedral project activities which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646178.

#### **3.2 Local relevance and interest of the Conference:**

The situation of marble stones in the Oslo Opera House, Norway is an interesting and challenging case study for the Nano Cathedral project. The use of marble in a Northern Scandinavian climate and architecture is a unique opportunity regarding the development of both protective and consolidant materials based on nanotechnology. Aside from the cold winter and hot summer season in Oslo, the marble stones in the Oslo Opera House are also exposed to vehicular traffic pollution and sea water conditions. The architecture of the building also affects the preservation of the quality of the marble stone. The building is open to the public 24 hours a day. Concerts and other activities that invites a large amount of people to gather on the roofscape of the Oslo Opera House will test the building construction and the quality of the marble stones of the opera house.

The open conference in Oslo was able to disseminate the project not only in Norway but also to the participants from Denmark and Sweden. Other relevant lectures were about the presentation of the results of Statsbygg's condition analysis regarding the yellowing of marble stones in the opera house; also the restoration and conservation of old wooden materials of the Viking ship museum in Oslo was targeted. The open conference has managed to join together experts and producers who attended the conference to exchange opinions and insights about cultural heritage building conservation and Nano technology. The



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socio-cultural and environmental impact regarding the use of nanotechnology was also one of the most interesting discussions in the conference.

### **3.3 Assessment of results:**

The open conference will be assessed by carrying out interviews and sending emails to the participants. Guided questionnaires will be used as a tool for the assessment. The participants of the conference were all interested on the development of the project Nano Cathedral. There are already requests about how the participants could be informed further about the development of the project. The status and development of the project will be available in Statsbygg's website. Other important activity will be by attending future invitations to speak in universities and institutions whenever possible, to disseminate the project.

### **3.4 Results and Expected Impacts:**

- Industrial and economic impact.
- Contribute to the continuous development of knowledge and methods on conservation of cultural heritage buildings.
- Broader academic network in Statsbygg, students, experts and other relevant research institutions.
- Encourage new research projects.



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## 4 AGENDA

*08:30 Registration*

### **09:00 Welcome**

Yngve Kvame, Property Manager, Statsbygg and Nils Are Karstad Lysø, Director General, The Norwegian Opera & Ballet

### **09:20 People, process and project**

Kari Stensrød, Senior Landscape Architect, Snøhetta, Norway

### **09:40 Operation and management plans for historic and listed buildings**

Magnus Tenge, Senior Architect, Statsbygg

### **10:00 Nano Cathedral project to preserve European stone monuments**

Dr. Beatrice Colteli, University of Pisa (UNIFI), Italy

### **10:30 The restoration and stone conservation in the Cathedral Square of Pisa**

Anton Sutter, Head Restorer, Opera Della Primaziale Pisana (OPAE), Italy

*11:00 Break*

### **11:30 Staining of Cararra marble - causes and colour effects, Oslo opera house**

Prof. Elen Roaldset and Rune Selbekk, University of Oslo (UiO), Norway

### **11:50 The protection of natural stones in outdoor environment: new perspective to a difficult challenge**

Dr. Lucia Toniolo, Politecnico di Milano (POLIMI), Italy

### **12:20 Three-step cleaning methodology to remove the yellowing from Cararra marble**

Dr. Noni-Pagona Maravelaki, Technical University of Crete (TUC), Greece

### **12:40 Alum treated finds from the Oseberg collection - Wood preservation by conservation?**

Dr. Susan Braovak, Museum of Cultural History, University of Oslo (UiO), Norway

*13:00 Lunch*

### **14:00 Successful examples of nano products application in the field of restoration and civil construction**

Luis Martínez de Morentin, Tecnologia Navarra de Nanoproductos (TECNAN), Spain

### **14:20 Innovative stone protection and stone hardener based on inorganic nano particles and silicone compound**

Cristoforo Galimberti, ChemSpec, Italy

### **14:40 A selection of innovative basic nanomaterials for consolidation and protection of cultural heritage**

Dr. Laura Niccolai, Colorobbia, Italy

### **15:00 Documentation and monitoring using advanced 3D scanning**

Dr. Rainer Drewello, University of Bamberg, Germany

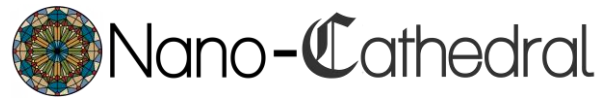
NMP-21-2014: Materials-based solutions for protection or preservation of European cultural heritage

Grant Agreement no: 646178





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**15:20 Innovative protective solutions based on nanotechnology**

Dr. Christian Rone Simon, SINTEF Materials and Chemistry, Norway

**15:40 – 16:00 Summary and discussion**

*16:00 – End of Open Conference*



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## 5 Photos



Figure 1 - Open Conference in Oslo Opera House, Scene 2 – 07 June, 2017 (Statsbygg, 2017).



Figure 2 – Open Conference speakers, participants and partners in Nano Cathedral in the Oslo Opera Foaje during the break (Statsbygg, 2017).



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Figure 3 – Guest speakers Dr. Reinar Drewello from Bamberg University (left), Dr. Simon Christian, SINTEF (middle) and Kari Stensrød, Senior Landscape Architect in Snøhetta (right) with Nano Cathedral partners in the background (Statsbygg, 2017).