



### Patrick CALLET (France)

> Applied Mathematics and Systems Lab.  
Ecole Centrale de Paris, France  
Associate researcher at CAOR, Ecole des Mines de Paris  
Vice-president of The Centre Français de la Couleur  
Scientific Adviser at Ars Mathematica  
> personal website : <http://www.arsmathematica.org/callet>



## Biography

Born in 1952 in Paris, graduated from the university P. & M. Curie, DEA in geophysics, DEA in computer graphics (ENSTA), PhD in Building Sciences at Ecole Centrale Paris (1993), Habilitation to lead Researches in Computer Graphics (1998), INSA Rouen (France).

Patrick Callet has great experience of teaching in many schools and colleges. He is head of several projects concerning photonics and rendering with many academic and industrial partners as well as digital heritage projects (CALLISTO-SARI, LIMA, GEOPAST and CoLuDoRAM, Royaumont, Idalion) involving important institutions.

He collaborates with renowned institutions in France such as prestigious museums (Louvre, National Museum of Asian Arts, Saint-Denis Basilica, Bibliothèque Nationale de France, Fondation Royaumont) and several schools of engineering. His research fields mainly concern physically based rendering and colour. He is French delegate member at AIC and Associate Editor of the international journal Color Research and Application (Wiley), he is also vice-president of the Centre Français de la Couleur and a member of the CIE (TC1 72A) Technical Committee.

Author of the famous book written in French, Couleur-lumière, couleur-matière – interaction lumière-matière et synthèse d'image, 1998, Diderot. Co-author of several books and many international articles and scientific movies.

See also: [www.dailymotion.com/fr/relevance/search/lutopix/1](http://www.dailymotion.com/fr/relevance/search/lutopix/1)

## Lecture title and abstract

### **Spectral Simulation for Cultural Heritage – Application to the design of new materials (photonics)**

The talk will be organized in two parts. The first part will expose the general scientific and technological methods used in cultural heritage projects. A movie made in the framework of the project “A horse and bronzes” in partnership with the National Museum of Asian Arts in Paris will illustrate our general set of methods to acquire a shape and to retrieve its original appearance. The physically replicated statuettes coated by an electrodeposited metallic film to give a convincing aspect of metal to a 3D printed plaster model will be exhibited. The second part will present the applications to the design of materials and bio-inspired modelling. As we formulate materials to produce a correct optical appearance depending on their material composition we can display past or futuristic images of objects in “real” spectrally simulated and normalized environments (lighting, CIE reference observer, etc).

See : [www.dailymotion.com/video/x19cpak\\_ma-yu-qingtong\\_tech](http://www.dailymotion.com/video/x19cpak_ma-yu-qingtong_tech) for the chinese version of the movie.