

Philippe Walter

Member of the French Académie des Sciences, Member of Academia Europaea

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CURRENT POSITION & TITLE

2023- Vice-president Fondation de la Maison de la Chimie

2012–2023 Director of the Laboratoire d'Archéologie moléculaire et structurale - LAMS, UMR 8220 CNRS – UPMC (Sorbonne Université), www.umr-lams.fr

2015-2019 – Co-director of the l'Observatoire des Patrimoines de Sorbonne-Universités (OPUS)

2012-2014 Professor at Collège de France, Chair of Technological Innovation Liliane Bettencourt

2012 – 2014 Director of the Fédération de Recherche NewAGLAE (in the Louvre museum)

2008 – 2011 Director of the Laboratory of the C2RMF, CNRS-UMR 171

2007 – Director of Research at CNRS

2005 – 2013 Associate Professor, University of Liege, Belgium

2003 – 2011 Head of the group « AGLAE and analytical chemistry » at the C2RMF

1999- 2007 Researcher at CNRS, Centre de recherche et de restauration des musées de France (C2RMF)

EDUCATION/TRAINING

2003 - Habilitation à diriger des recherches, Chemistry, Université Paris 6

1993 - PhD in Geochemistry at University Paul Sabatier, Toulouse, France

1989 - Master Degree in Physics at Ecole Normale Supérieure, Paris

1986-1990 Student at Ecole Normale Supérieure de Saint-Cloud

HONORS:

Doctor Honoris Causa, Université de Liège, Belgique (2023), Member of the Académie des Sciences (elected in 2022), Member of Academia Europaea (elected in 2019), Grand Prix Joseph-Achille Le Bel, French Society of Chemistry (2017), Franklin-Lavoisier Prize (Philadelphia, USA, 2010), Fellow of the Foundation IXCORE for Research (2009), CNRS Silver Medal (2008), Grammatikakis-Neuman Prize of Chemistry from the French Academy of Sciences (2004), CNRS Bronze Medal (2000), Prize in physical chemistry from the French Chemical Society (1994)

SCIENTIFIC ACTIVITIES

- Co-author of about 300 scientific publications (50% in chemistry, 50% in humanities) and invited lecturers more than 200 times in conferences, workshops, seminars, ...

- Chair or co-chair of about ten international workshop, congress or school, in particular of three schools in the framework of the International School Hubert Curien of molecular and structural archaeology, Erice, Italy (2006, 2010, 2015).

- Founding member of a Gordon research Conference on Scientific methods in Cultural Heritage research (vice chair in 2012 and chair in 2014).

- Guest curator of the exhibitions: « Le bain et le miroir » au Musée de Cluny - Musée national du Moyen Age, Paris, 2009 ; « Egyptian perfumes », Cairo Museum, 2002.

- PI of different research programs: « Cosmetic practices during Antiquity » CNRS-L'Oréal-Ministère de la Culture (1996-2012) et « Pharmacy and Archaeology » CNRS- University Paris Sud- Ministère de la Culture and ACI Jeune chercheur (2001-2006), "NanoCHEOPS: Nanoreactors in hand for optoelectronic and Cultural Heritage conservation", ANR (2008-2012), POLYRE: L'Aventure POLYchrome, matérialité, REprésentation, Reception, Sorbonne Université (2014-2017), Operando photoageing plateforme at LAMS (PEPR LUMA, 2023-2028).

Books:

- Ph. Walter, *Chimie analytique et histoire de l'art. Leçon inaugurale de la chaire d'innovation technologique* Liliane Bettencourt 2013-2014 au Collège de France, Ed. Fayard, 2014.
- Ph. Walter, F. Cardinali. *L'art-chimie, enquête dans le laboratoire des artistes*. Ed. Fondation de la maison de la Chimie / Michel de Maule, mai 2013.

Selection of publications:

- Hélène Pasco, Laurence de Viguerie, Marco Faustini, Cristina Coelho-Diogo, Ovidiu Ersen, Christel Gervais, Frédéric Gobeaux, Dris Ihiawakrim, Maguy Jaber, Philippe Walter, and Clément Sanchez, Shedding Light on Functional Hybrid Nanocomposites 19th Century Paint Medium, *Adv. Funct. Mater.* 2021, 2106346
- C. Fritz, G. Tosello, G. Fleury, E. Kasarhérou,, Ph. Walter, F. Duranthon, P. Gaillard, J. Tardieu, First record of the sound produced by the oldest Upper Paleolithic seashell horn, *SCIENCE ADVANCES*, 2021, vol 7/7, DOI: 10.1126/sciadv.abe9510
- Marcela Sepúlveda, Denise Pozzi-Escot, Rommel Angeles Falcón, Nicolas Bermeo, Matthieu Lebon, et al. Unraveling the polychromy and antiquity of the Pachacamac Idol, Pacific coast, Peru. *PLoS ONE*, , 2020, 15 (1), pp.e0226244.
- Philippe Walter et Laurence de Viguerie, Materials science challenges in paintings, Invited Commentary, *Nature Materials*, 17, 106–109 (2018), doi:10.1038/nmat5070
- Matthias Alfeld, Maud Mulliez, Philippe Martinez, Kevin Cain, Philippe Jockey, and Philippe Walter, The Eye of the Medusa – XRF Imaging Reveals Unknown Traces of Antique Polychromy, *Analytical Chemistry*, DOI: 10.1021/acs.analchem.6b03179, 2017.
- Laurence de Viguerie, Maguy Jaber, Hélène Pasco, Jacques Lalevée, Fabrice Morlet-Savary, Guylaine Ducouret, Baptiste Rigaud, Thierry Pouget, Clément Sanchez, and Philippe Walter, A 19th Century “Ideal” Oil Paint Medium: A Complex Hybrid 4 5 Organic–Inorganic Gel, *Angewandte Chemie Int. Ed.*, DOI: 10.1002/anie.201611136, 2017.
- S.D. Haveli, P. Walter, G. Patriarche, J. Ayache, J. Castaing, E. van Elslande, G. Tsoucaris, P. Wang, H. B. Kagan, Hair fiber as a nanoreactor in controlled synthesis of fluorescent gold nanoparticles, *Nano Letters*, DOI: 10.1021/nl303107w, 2012.
- De Viguerie L, Walter, P., Laval, E., Mottin, B., Solé, V.A. (2010) Revealing the sfumato Technique of Leonardo da Vinci by X-Ray Fluorescence Spectroscopy, *Angewandte Chemie International Edition*, 49 (35), 6125–6128.
- I. Tapsoda, S. Arbault, Ph. Walter, C. Amatore (2010) Finding out Egyptian Gods' secret using analytical chemistry: biomedical properties of Egyptian black makeup revealed by amperometry at single cells, *Analytical Chemistry*, 82, 457–460.
- P. Bleuet, E. Welcomme, E. Dooryhee, J. Susini, J.L. Hodeau, Ph. Walter (2008) Probing the structure of heterogeneous diluted materials by diffraction tomography. *Nature Materials*, 7, 468 – 472.
- Vincent Mazel, Pascale Richardin, Delphine Debois, David Touboul, Marine Cotte, Alain Brunelle, Philippe Walter, Olivier Laprevote (2007) Identification of Ritual Blood in African Artifacts Using TOF–SIMS and Synchrotron Radiation Microspectroscopies, *Analytical Chemistry*, 79, 9253–9260.
- Ph. Walter, E. Welcomme, Ph. Hallégot, N. J. Zaluzec, C. Deeb, J. Castaing, P. Veyssièrre, R. Bréniaux, J.L. Lévêque, G. Tsoucaris (2006) – Evidence for early use of nanotechnology from an ancient hair dyeing formula. *Nano Letters* 6, 2215–2219.
- Ph. Walter, P. Martinetto, G. Tsoucaris, R. Bréniaux, M.A. Lefebvre, G. Richard, J. Talabot, E. Dooryhée (1999) - Making make-up in Ancient Egypt. *Nature*, 397, 483–484.

Patents:

- Hodeau J.L., P. Bordet, A. Gianoncelli, L. Ortega, A. Prat, P. Walter, J. Salomon, E. Dooryhee, Device for the X-ray analysis of a specimen, comprising an energy/angle filtering diffraction analyser system, brevet français n°0754151 et US Patent Application Number 12/593,908, 27 mars 2008
- F. Bourcier, Ph. Walter, Broadband hyperspectral imaging spectrophotometer configured to analyze an object in the fluorescent field. Application number 20190018230, January 17, 2019