

### Key publications

Issues in Contemporary Oil Paints (ICOP), *Proceedings from the Symposium, 28 and 29 March 2013, Amersfoort, The Netherlands*, eds. K.J. van den Berg, A. Burnstock, A. de Tagle, M. de Keijzer, G. Heydenreich, J. Krueger and T. Learner, Springer

Centeno, S. A. and Mahon, D. (2009). The Chemistry of Aging in Oil Paintings: Metal Soaps and Visual Changes. *The Metropolitan Museum of Art Bulletin*, Summer 2009, pp. 12–19.

Keune, K. and Boon, J.J. (2007). Analytical imaging studies of paint cross-sections illustrate the oil paint defect of lead soap aggregate formation. *Studies in Conservation*, 52, pp. 161-176.

Cotte, M., Checroun, E., Susini, J., and Walter, P. (2007). Micro-analytical study of interactions between oil and lead compounds in paintings. *Appl. Phys. A*, 89, pp. 841–848.

Osmond, G., Keune, K. and Boon, J.J. (2005). A study of zinc soaps found in paintings at the Queensland Art Gallery, *AICCM Bulletin*, 29, pp. 37-46.

Higgitt, C., Spring, M. and Saunders, D. (2003). Pigment-medium interactions in oil paint films containing red lead or lead-tin yellow. *National Gallery Technical Bulletin*, 24, pp. 75-96.

Robinet, L. and Corbeil, M.-C. (2003). *Studies in Conservation*, 48, pp. 23–40.

Boon, J.J., Van der Weerd, J., Keune, K., Noble, P. and Wadum, J. (2002) Mechanical and chemical changes in Old Master paintings: dissolution, metal soap formation and remineralization processes in lead pigmented ground/intermediate paint layers of 17th century paintings. In: Vontobel R (Ed) *ICOM-CC Preprints of the 13th Triennial Meeting*, Rio de Janeiro, 1, James and James, London.

Noble P., Boon, J. J. and Wadum, J. (2002). Dissolution, Aggregation and Protrusion: Lead soap formation in 17th century grounds and paint layers. *ArtMatters* 1, pp. 46-62

### Key publications by the invited speakers

Silvia Centeno

J. Catalano, A. Murphy, Y. Yao, G.P.N. Yap, N. Zumbulyadis, S.A. Centeno, C. Dybowski. 'Coordination Geometry of Lead Carboxylates-Spectroscopic and Crystallographic Evidence.' *Journal of the Chemical Society, Dalton Transactions* 44 (2015) 2340-2347. DOI: 10.1039/c4dt03075c

J. Catalano, Y. Yao, A. Murphy, N. Zumbulyadis, S. A. Centeno, C. Dybowski. 'Understanding Soap Formation in Paint Films by <sup>207</sup>Pb, <sup>119</sup>Sn and <sup>13</sup>C solid-state NMR.' *Proceedings of the Materials Science & Technology 2014 Conference*, Pittsburgh, PA, USA, October 12-16, 2014, p. 2161-2168.

J. Catalano, A. Murphy, Y. Yao, F. Alkan, N. Zumbulyadis, S. A. Centeno, C. Dybowski. '<sup>207</sup>Pb and <sup>119</sup>Sn Solid-State NMR and Relativistic DFT Studies of the Historic Pigment Lead-Tin Yellow Type I and its Reactivity in Oil Paintings.' *Journal of Physical Chemistry A* 118 (2014) 7952-7958. dx.doi.org/10.1021/jp505908

J. Catalano, Y. Yao, A. Murphy, N. Zumbulyadis, S. A. Centeno, C. Dybowski. 'Analysis of Lead Carboxylates and Lead-containing Pigments in Oil Paintings by Solid-State Nuclear Magnetic Resonance.' In P.B. Vandiver, W. Li, P. Sciau and C. Maines (eds.) *Materials Issues in Art and Archaeology X, MRS Fall Meeting 2013 Symp. Proceedings Vol. 1656*, Warrendale, PA, 2014. doi: 10.1557/opl.2014.707

J. Catalano, Y. Yao, A. Murphy, N. Zumbulyadis, S. A. Centeno, C. Dybowski. 'NMR Spectra and <sup>207</sup>Pb Chemical-Shift Tensors of Lead Carboxylates Relevant to Soap Formation in Oil Paintings.' *Applied Spectroscopy* 68:3 (2014) 280-286.

Gillian Osmond

Osmond, G, 2011. Zinc white: a review of zinc oxide pigment properties and implications for stability in oil-based paintings, *AICCM Bulletin* vol 33 pp 20-29.  
<http://dx.doi.org/10.1179/bac.2012.33.1.004>

Osmond, G, Boon, JJ, Puskar, L and Drennan, J, 2012. Metal stearate distributions in modern artists' oil paints: surface and cross-sectional investigation of reference paint films using conventional and synchrotron infrared microspectroscopy, *Applied Spectroscopy* 66(10) pp 1136-1144. <http://dx.doi.org/10.1366/12-06659>

Osmond, G, Ebert, B and Drennan, J, 2014. Zinc oxide-centred deterioration in 20th century Vietnamese paintings by Nguyen Trọng Kiệm *AICCM Bulletin* vol 34 pp 4-14.  
<http://dx.doi.org/10.1179/bac.2013.34.1.002>

Osmond, G 2014. Zinc white and the influence of paint composition for stability in oil-based media, In: van den Berg KJ, Burnstock A, Keijzer M, Kruger J, Learner T, de Tagle A, Heydenreich G (eds) *Issues in contemporary oil paint*. Springer International Publishing 2014: 263-281. [http://link.springer.com/chapter/10.1007/978-3-319-10100-2\\_18](http://link.springer.com/chapter/10.1007/978-3-319-10100-2_18)

Joen Hermans

Hermans, J. J., Keune, K., van Loon, A., & Iedema, P. D. (2015). An infrared spectroscopic study of the nature of zinc carboxylates in oil paintings. *Journal of Analytical Atomic Spectrometry*, 30, 1600–1608. doi:10.1039/C5JA00120J

Hermans, J.J., Keune, K., van Loon, A., Corkery, R.W., and Iedema, P.D. (2014). The molecular structure of three types of long-chain zinc(II) alkanooates for the study of oil paint degradation. *Polyhedron* 81: 335–340.

Hermans, J.J., Keune, K., van Loon, A., Stols-Witlox, M.J.N., Corkery, R.W., & Iedema, P.D. (2014). The synthesis of new types of lead and zinc soaps: A source of information for the study of oil paint degradation. In J. Bridgland (Ed.), *ICOM-CC 17th Triennial Conference Preprints*, Melbourne, 15-19 September 2014 (p. art. 1603). Paris: International Council of Museums.