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**Lightning talk: *A national framework for managing malignant plastics in museum collections***

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**ABSTRACT**

Since the discovery of semi- and fully synthetic plastic materials at the end of the 19th century and their development in the 20th century, they have come to be considered one of the most notable materials created by the chemical industry. As a consequence, museums and galleries all over the world have and are acquiring growing collections of polymer-based materials (such as photography and motion picture film, every day objects and modern art), which they have a responsibility to preserve for the enjoyment and education of future generations. In addition, polymer-based materials may also be associated with cultural heritage objects, in the form of adhesives, coatings, supports and storage materials. However as commercial products, these substances are not designed to last forever. As a consequence, curators, conservators and collectors are faced with a new group of materials that appear to be deteriorating rapidly and also have the potential to compromise other items within a collection. Aging and failing adhesive polymer repairs provide further evidence of problems in this area. In addition, a sub-group of malignant plastics (CN, CA, PVC, PU) have been identified. These polymers not only deteriorate rapidly and cause damage to themselves but also to other surrounding materials and these are of particular interest. Commencing December 2016, the Australian Research Council has provided funding to support a nation-wide research linkage project for the next three years that aims to examine the types of plastics held in collections; where they are held; their overall condition; how they can best be identified; and how the deterioration of these materials can be analysed and managed. This paper examines how this project has been designed and delivered to deal with the issues raised by the ubiquitous and inherent nature of plastic deterioration in cultural heritage collections.

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## **BIOGRAPHIES**

Petronella Nel is a Lecturer at the Grimwade Centre for Cultural Materials Conservation (GCCMC) at the University of Melbourne. She is currently leading a collaborative ARC Linkage Project 'A National Framework for managing malignant plastics in Museum Collections'. She is interested in developing analytical techniques for characterising polymers, dyes and pigments in order to inform their preservation.

Julienne Bell has completed a Master of Cultural Material Conservation (2016) specialising in objects conservation and a Bachelor of Arts (Honours) (2013) majoring in Classics and Archaeology with a History minor, both obtained at the University of Melbourne. Julianne recently commenced PhD research funded by the ARC-LP, supervised by Dr Petronella Nel and Prof Robyn Sloggett. Julianne's research project aims to focus on developing analytical techniques for characterising and identifying the condition and preservation requirements of three-dimensional objects composed of early cellulose ester plastics.

Robyn Sloggett is a Director of the Grimwade Centre, which delivers industry-focused conservation teaching, research and consultancy programs. Her research incorporates scientific and cultural analysis of Australian art, attribution, conservation in Southeast Asia, and the preservation of cultural material and archives held in remote and regional communities.

Ken Ghigginio is Masson Professor of Chemistry at the University of Melbourne. His research interests include the photochemistry of natural and synthetic materials including plastics, paints and dyes. He is a Fellow of both the Royal Australian Chemical Institute and the Royal Society of Chemistry.

Andrew Jamieson is a senior lecturer in Near Eastern Archaeology and curator of the Classics and Archaeology Collection at the University of Melbourne. He has worked at archaeological sites in Egypt, Lebanon, Syria and Australia. He specializes in the study of ancient ceramics and interested in archaeological collections management practices.

Helen Privett is Manager, Conservation at Museum Victoria. Helen graduated from University of Canberra in 1998 and since that time has worked in a number of roles at National Gallery of Victoria and Museums Victoria. Helen's recent focus has been on managing hazardous substances in collections, plastics and digitisation.

Karina Palmer is Senior Conservator for Collection Preservation at Museums Victoria. She graduated from the University of Canberra in 2001 with a Bachelor of Applied Science in Conservation of Cultural Material and completed a Master of Art Curatorship at the University of Melbourne in 2008. Karina trained as an objects conservator and oversees the preventive work of the paper and natural sciences conservators at the Museum. Her recent focus has been on environmental monitoring and reporting, collection surveys and plastics conservation.

Sue Gatenby manages the Conservation research projects and Collection Care team for the Museum of Applied Arts and Sciences. She has a Bachelor of Science from the University of Sydney as well as a Master's Degree of Applied Science in the Conservation of Cultural Materials from The University of Canberra. Sue also holds a Certificate IV in Assessment and Workplace Training. Sue is presently working on a number of collaborative research projects including: Getty Conservation Institute on the Assessment of historical cellulose acetate samples; ANSTO analysis of Japanese swords and an ancient Chinese wine vessel and is the MAAS team leader for the ARC's linkage project. Sue manages the routine analysis of unknown materials in the museum collection using FTIR-ATR and XRF methodology. Sue is also a Professional Member of AICCM.

Cathy ter Bogt is Senior Conservator at the Queensland Museum. She received her Masters of Applied Science (Conservation) from the University of Canberra in 2003 after studying Engineering (Materials)/Arts at Monash University, Melbourne (2000). Her areas of interest are modern synthetics, emergency management and educating anyone who will listen about the conservation.

Malgorzata Sawicki is Head of Frames Conservation at AGNSW. Trained in gilded/ polychrome objects conservation in Poland (PKZ, NCU), Malgorzata received Master Degree with Distinction, and later PhD in Applied Science (Materials Conservation) for research on non-traditional gilding techniques (WSU, 2009). Her research interest include also metallic paints and metal soaps formation in gold imitation-finishes on wood. Malgorzata was Coordinator of the ICOM-CC Wood, Furniture, and Lacquer WG (2008–2014).

Barbara Stuart is an Associate Professor in the Centre for Forensic Science at the University of Technology Sydney. Her research interests include the application of chemical analysis to materials conservation, archaeology and forensic science.

Rachel Popelka-Filcoff uses advanced analytical methods to analyse cultural heritage materials at Flinders University. Her work is the first comprehensive characterisation of Australian Aboriginal natural mineral pigments. She is the President of the Society for Archaeological Sciences, and on the editorial board of Journal of Archaeological Science.