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International Symposium on
Science and Conservation for
Art and Cultural Heritage

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SciConArt 2026

International Symposium on Science and Conservation for Art and Cultural
Heritage

BOOK OF ABSTRACTS

Bangkok, Thailand

23–24 July 2026

Multi-Function Room 1, Tab Nilanidhi Building, Faculty of Science, Chulalongkorn University

Organized by

Science Conservation Centre for Art (SCICCA)

Chulalongkorn University



Table of Contents

Table of Contents	3
Welcome Message	5
Organizing Committee	6
Academic Committee.....	6
Program at a Glance	7
Day 1 — Thursday, 23 July 2026.....	7
Day 2 — Friday, 24 July 2026.....	8
Keynote Abstracts.....	9
Ecologies of Cultural Conservation Knowledge: What Matters in Southeast Asian Tropical Climates.....	9
Custodians of Fragility: Paper Conservation in an Era of Digital Preservation	10
Oral Presentation Abstracts.....	12
Day 1 — Thursday, 23 July 2026.....	12
1. Beyond the Surface: A Clinical Diagnosis Analogy for a Proposed Scientific Investigation Framework of Salt Weathering in Thai Historic Masonry	12
2. Study Before Intervention: An Evidence-Based Governance Framework for the Conservation of Non-Registered Government-Owned Historic Buildings: Empirical Evidence from the Wang Chaiya Project, Thailand.....	13
3. Visual Examination of Hand-Painted Portrait Photographs from the Philippines	15
4. Restoring Connections: Art Conservation in the Digital Age.....	16
5. Hidden in Color: Treatment and Scientific Analysis of a 1960s Painted Wood Construction by Irwin Rubin.....	17
6. Material Analysis and Structural Consolidation of Galileo Chini's Portrait of King Rama VI	18
7. Living Legacy: Bridging Memory, Materiality, and Conservation through Artist's Daughter Engagement in the Preservation of Pratuang Emjaroen's Artistic Heritage.....	19
8. Internships & Apprenticeships — When Do We Really Graduate?.....	20
9. Digitization of Bee and Spider Collections in the Chulalongkorn University Museum of Natural History	21
10. 3-Dimensional Insect Specimen Documentation and Production for Educational Purpose and Outreach in a Household Scale	22
11. Color Vision Factors and Color Value Collection in Cultural Heritage Research and Conservation	23
Day 2 — Friday, 24 July 2026.....	24

12. Characterization of Thai Mural Paintings from Mid to Late Ayutthaya Period (1488–1688): Case Studies of Wat Chaiwatthanaram, Wat Chong Nonsi and the Residential Building of Somdet Phra Phutthakosajarn	24
13. In Between the Layers: Technical Study of a Contemporary Vietnamese Lacquer Painting.....	25
14. Bio-Coating Solution for Paper and Artwork Preservation	26
15. An Integrated Analytical Approach to the Examination and Stabilization of a Polychrome Wooden Architectural Fragment.....	27
Author Index	28

Welcome Message

It is my great pleasure to welcome you to the International Symposium on Science and Conservation for Art and Cultural Heritage 2026 (SciConArt26). On behalf of the Organizing Committee, I sincerely thank you for joining us at the Faculty of Science, Chulalongkorn University, Bangkok, Thailand.

Cultural heritage is more than a record of the past, it is a living legacy that connects people, communities, and generations. Its preservation requires not only scientific knowledge and technical expertise, but also collaboration across disciplines, institutions, and cultures. SciConArt26 was established with this vision: to create a platform where conservators, scientists, museum professionals, researchers, and students can come together to exchange knowledge, share experiences, and inspire new ideas.

Over the next two days, we will explore diverse topics in conservation science, technical examination, material analysis, digital documentation, and emerging technologies. More importantly, this symposium offers an opportunity to build lasting professional relationships and strengthen international collaboration for the future of cultural heritage conservation.

I extend my heartfelt appreciation to our keynote speakers, presenters, Academic Committee members, Faculty of Science, and every participant whose dedication has made this symposium possible.

I hope your time at SciConArt26 will be inspiring, rewarding, and filled with meaningful discussions that continue well beyond this symposium.

Welcome to SciConArt26, and welcome to Bangkok.

Assoc. Prof. Dr. Pichayada Katemake
Conference Chair, SciConArt 2026

Organizing Committee

- Assoc. Prof. Dr. Pichayada Katemake — Conference Chair, Faculty of Science, Chulalongkorn University / Science Conservation Centre for Art, Chulalongkorn University
- Dr. Nawarat Kaew-on — Science Conservation Centre for Art, Chulalongkorn University
- Dr. Anukul Radsamrong — Science Conservation Centre for Art, Chulalongkorn University
- Norman Verschueren — Science Conservation Centre for Art, Chulalongkorn University
- Pakornsit Pongto — Science Conservation Centre for Art, Chulalongkorn University

Academic Committee

- Assoc. Prof. Dr. Pichayada Katemake — Faculty of Science, Chulalongkorn University, Thailand
- Assoc. Prof. Dr. Nicole Tse — Robert Cripps Institute for Cultural Conservation, University of Melbourne, Australia
- Assoc. Prof. Dr. Alongkot Fanka — Faculty of Science, Chulalongkorn University, Thailand
- Asst. Prof. Ochana Poonthongdeewatthana — Department of Art Theory, Silpakorn University, Thailand
- Asst. Prof. Dr. Kamonwan Pacaphol — Faculty of Science, Chulalongkorn University, Thailand
- Dr. Nawarat Kaew-on — Science Conservation Centre for Art, Chulalongkorn University, Thailand
- Dr. Anukul Radsamrong — Science Conservation Centre for Art, Chulalongkorn University, Thailand

Program at a Glance

Day 1 — Thursday, 23 July 2026

Time	Presenter	Title	Session Chair
08:45–09:30	<i>Registration</i>		
09:30–09:40	<i>Opening Ceremony</i>		
09:40–10:40	Keynote — Nicole Tse	Ecologies of Cultural Conservation Knowledge: What Matters in Southeast Asian Tropical Climates	Pichayada Katemake
10:40–11:00	Arpichart Kittimethaveenan	Beyond the Surface: A Clinical Diagnosis Analogy for a Proposed Scientific Investigation Framework of Salt Weathering in Thai Historic Masonry	Pichayada Katemake
11:00–11:15	<i>Coffee Break</i>		
11:15–11:35	Prat Tinrat	Study Before Intervention: An Evidence-Based Governance Framework for the Conservation of Non-Registered Government-Owned Historic Buildings	Pichayada Katemake
11:35–11:55	Nina Lawrence Duenas	Visual Examination of Hand-Painted Portrait Photographs from the Philippines	Pichayada Katemake
11:55–12:15	Monica Gunawan	Restoring Connections: Art Conservation in the Digital Age	Pichayada Katemake
12:15–13:15	<i>Lunch Break</i>		
13:15–13:35	Victoria Kitirattagarn	Hidden in Color: Treatment and Scientific Analysis of a 1960s Painted Wood Construction by Irwin Rubin	Nicole Tse
13:35–13:55	Tam Laovichaya	Material Analysis and Structural Consolidation of Galileo Chini's Portrait of King Rama VI	Nicole Tse
13:55–14:15	Norman F. C. Verschuere	Living Legacy: Bridging Memory, Materiality, and Conservation through Artist's Daughter Engagement in the Preservation of Pratuang Emjaroen's Artistic Heritage	Nicole Tse
14:15–14:35	Fang Zheng Ong	Internships & Apprenticeships — When Do We Really Graduate?	Nicole Tse
14:35–14:55	Chawatat Thanosing	Digitization of Bee and Spider Collections in the Chulalongkorn University Museum of Natural History	Nicole Tse
14:55–15:10	<i>Coffee Break</i>		
15:10–15:30	Kavee Sirichantakul	3-Dimensional Insect Specimen Documentation and Production for Educational Purpose and Outreach in a Household Scale	Nicole Tse
15:30–16:10	Yuwadee Thiangthangtum	Color Vision Factors and Color Value Collection in Cultural Heritage Research and Conservation	
18:00 onwards	<i>Networking Dinner</i>		

Day 2 — Friday, 24 July 2026

Time	Presenter	Title	Session Chair
08:45–09:30	Registration		
09:30–10:30	Keynote — Neungreudee Lohapon	Custodians of Fragility: Paper Conservation in an Era of Digital Preservation	Pichayada Katemake
10:30–10:50	Pankaew Khamsrichan	Characterization of Thai Mural Paintings from Mid to Late Ayutthaya Period (1488–1688): Case Studies of Wat Chaiwatthanaram, Wat Chong Nonsi and the Residential Building of Somdet Phra Phutthakosajarn	Radchada Buntem
10:50–11:10	Vu Bac Do	In Between the Layers: Technical Study of a Contemporary Vietnamese Lacquer Painting	Radchada Buntem
11:10–11:25	Coffee Break		
11:25–11:45	Chutiparn Lertvachirapaiboon	Bio-Coating Solution for Paper and Artwork Preservation	Radchada Buntem
11:45–12:05	Victoria Kitirattragarn	An Integrated Analytical Approach to the Examination and Stabilization of a Polychrome Wooden Architectural Fragment	Radchada Buntem
12:05–13:05	Lunch Break		
13:05–14:20	Lab Tour & Workshop— Norman Verschueren, Pichayada Katemake	- SCICCA Conservation Lab Tour (Group 1) - Workshop: Optical Diagnostics for Cultural Heritage: Color, Spectral Reflectance, and Light (Group 2)	
14:20–14:35	Coffee Break		
14:35–15:50	Lab Tour & Workshop— Norman Verschueren, Pichayada Katemake	- SCICCA Conservation Lab Tour (Group 2) - Workshop: Optical Diagnostics for Cultural Heritage: Color, Spectral Reflectance, and Light (Group 1)	
15:50–16:00	Closing Ceremony		

Keynote Abstracts

Ecologies of Cultural Conservation Knowledge: What Matters in Southeast Asian Tropical Climates

Assoc. Prof. Dr. Nicole Tse

Robert Cripps Institute for Cultural Conservation, University of Melbourne, Australia

Abstract: Global socio-environmental crises—rapid population growth, unprecedented displacement, climate change, mass biodiversity loss and the COVID-19 pandemic—has challenged conventional cultural conservation and its practice. Collections worldwide embody heterogeneous knowledge systems, yet twentieth-century conservation has often privileged modern science expertise over the cultural practices and communities who create and sustain heritage. This paper frames cultural conservation as an "ecology of knowledge" composed of four interacting agencies—people, place, time and collections—that together broker scientific and socialised forms of knowing. Relational conservation requires networks, critical skills and affective advocacy to make knowledge production transparent, co-produced and inclusive. In Southeast Asia, situated pressures such as tropical climates, natural disasters and collective traditions illustrate how materiality, practice and social expectation intersect to shape cultural conservation decisions. By foregrounding relationality, the ecology model decentres universalist positivism and instead maps where prudent and embodied knowledges resides and circulates. The approach proposes practical and epistemic strategies to harmonise professional and community knowledges, supporting resilient, contextually appropriate conservation in the tropics.

Keywords: *cultural conservation, ecology of knowledge, 4 agencies: people, place, time and collections, Southeast Asia, materiality*

Biography: Associate Professor Nicole Tse is the Theme Lead of Enterprise and Engagement at the Robert Cripps Institute for Cultural Conservation (formerly the Grimwade Centre for Cultural Materials Conservation). With interdisciplinary expertise in cultural materials conservation, Tse's research critically focusses on sustaining the cultural record, collection care and managing change in the Asia Pacific region. Key leadership in APTCCARN (Asia Pacific Tropical Climate Conservation Art Research Network), an international network which connects heritage workers across Southeast Asia, provides a space to ask what can be learnt from challenge led conservation sites, and how conservation actions have attended to their own characteristics of place, situated experiences and adaptive thinking. This enduring network has led to valuable outcomes for cultural conservation in the tropics, a community of practice and shared knowledge building.

From 2014–2025 Tse was the Chief Editor of the AICCM Bulletin (Taylor & Francis). Awards include the 2025 AWHEIC UNESCO Global Award for World Heritage Education (See Yup Temple Project), the 2024 AICCM Medal for lifetime achievement and Tse was a Post Doctorate Fellow on the ARC Linkage project '20th Century in Paint' (2010-2013) and was awarded a PhD on The Characterisation of Canvas Paintings in Tropical Southeast Asia (2003-2008), University of Melbourne.

Custodians of Fragility: Paper Conservation in an Era of Digital Preservation

Assoc. Prof. Dr. Neungreudee Lohapon

Department of Western Languages, Faculty of Arts, Chulalongkorn University, Bangkok, Thailand

Abstract: Decades after cultural heritage institutions first adopted digitization as a means of balancing the conservation of physical materials with public accessibility, critical debates persist concerning what, why, and how we digitize. These questions have become increasingly urgent amid escalating natural, environmental, and human-induced crises that threaten tangible cultural heritage. At the same time, the digital realm remains vulnerable to technological obsolescence, cybersecurity risks, and the continuing burdens of data migration. Conversely, properly conserved physical paper artifacts may endure for centuries. Addressing these intersecting vulnerabilities, this paper presents a decision-making framework developed through a decade of field research conducted across two major initiatives: the restoration and digitization of iconic early twentieth-century photographs, and a ten-year project dedicated to preserving fragile, geographically dispersed historical repertoires linked to the modernization of Siam during the age of Imperialism.

To safeguard these endangered materials, extensive provenance and historical research was conducted to establish their interconnected cultural and evidential values across geographically separated collections. The project subsequently developed a balanced methodology for documentation and handling, centered on a custom-built mobile high-resolution digitization unit. Equipped with controlled, non-destructive lighting and tailor-made preventive supports, the mobile unit enables rare and deteriorating materials to be studied and digitized in situ, thereby minimizing transit risks and limiting the mechanical and structural stress placed on the originals.

This paper proposes a complementary framework: high-resolution digital artifacts are understood as distinct originals in their own right – possessing analytical, relational, and metadata capabilities that can reconstitute a dispersed heritage across space and time. Physical conservation nevertheless remains indispensable, since digital files cannot fully reproduce material characteristics such as surface textures, ink depth, construction, or forensic evidence. Ultimately, the paper argues that physical paper and digital asset possess inverse forms of fragility. Digital preservation can protect vulnerable paper materials from repeated handling and reduce the consequences of sudden catastrophic loss. Conserved physical artifacts, in turn, provide an authentic and potentially enduring material foundation against the vulnerabilities of the digital realm, while continuing to bear direct evidence of the historical moment in which they are created.

Biography: Neungreudee Lohapon, Ph.D., is an Associate Professor of Italian Studies at the Faculty of Arts, Chulalongkorn University, Thailand, where her research bridges art history, cultural memory, documentary heritage, and digital preservation.

Over the past three decades, her research has centered on the intersection of Italian art history, cultural diplomacy, and the preservation of the shared cultural heritage of Thailand and Europe, focusing on the artistic, architectural, and cultural exchanges between Italy and Thailand, and contributing to a deeper understanding of the transcultural encounters that shaped the modernization of Siam during the late nineteenth and early twentieth centuries.

Since 2015, she has directed the Digital Archive of Modernized Siam Project, where she leads interdisciplinary research on cultural memory, documentary heritage, endangered archives, and digital preservation, with working stations in Bangkok, Thailand, and Turin, Italy, supported by philanthropic grants.

She is currently Head of the Arc of Memory Research Unit and Director of the Digital Archive of Modernized Siam Project, actively working to promote integrated approaches in which

digital preservation complements—rather than substitutes for—the conservation of original materials, ensuring their long-term accessibility, interpretation, and transmission for future generations.

In recognition of her contribution to Italian–Thai cultural relations, she was made a Knight of the Order of the Star of Italy by the President of the Italian Republic.

Oral Presentation Abstracts

Day 1 — Thursday, 23 July 2026

1. Beyond the Surface: A Clinical Diagnosis Analogy for a Proposed Scientific Investigation Framework of Salt Weathering in Thai Historic Masonry

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Abstract: In the architectural heritage preservation practice of Thailand, the assessment of material decay in historic brick masonry traditionally relies heavily on visual inspection and qualitative condition surveys. However, due to the intricate sub-surface mechanisms of soluble mixed-salt crystallization, superficial observations often fail to identify the true underlying pathology. Subflorescence can exert significant internal crystallization pressure, leading to irreversible structural disintegration long before symptoms become visually apparent on the exterior surface, particularly in tropical humid environments where incompatible past repairs trap moisture.

To address this gap, this paper introduces a proposed context-specific diagnostic framework for historic brick masonry by drawing a direct analogy to clinical medical examinations. Grounded in a comprehensive literature review and initial qualitative field observations of regional case studies, the framework demonstrates that effective conservation demands a systematic pathway akin to medical procedures. This includes compiling a comprehensive history (environmental and archival background), physical examination (visual condition survey), and assigning targeted clinical investigations (planned micro-destructive testing and thermodynamic modeling) to confirm symptomatic assumptions before declaring a treatment option.

By defining these clear "clinical" pathways from preliminary assessment to advanced scientific diagnosis, this framework aims to expand a practitioner's options from reactive, cosmetic repairs to evidence-based preventive conservation strategies, such as environmental microclimate control. Ultimately, this ongoing doctoral research presents a shifting paradigm for tropical masonry preservation in Southeast Asia—moving from subjective surface observation to a science-backed, systematic diagnostic protocol that ensures long-term structural resilience.

Keywords: *salt weathering; historic brick masonry; diagnostic framework; medical analogy; preventive conservation; built heritage preservation*

Session: Day 1 — 23 July 2026

2. Study Before Intervention: An Evidence-Based Governance Framework for the Conservation of Non-Registered Government-Owned Historic Buildings: Empirical Evidence from the Wang Chaiya Project, Thailand

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Abstract: Across many countries, government-owned historic buildings that have not been formally designated as heritage assets face increasing risks from renovation and adaptive reuse undertaken through conventional public procurement systems. Although international conservation doctrine consistently emphasizes the importance of understanding heritage significance before intervention, comparatively little attention has been paid to the governance mechanisms that ensure historical research, architectural investigation, and scientific analysis are undertaken before public-sector decisions are made. As a result, conservation outcomes are often constrained not by the absence of technical knowledge but by institutional frameworks that prioritize construction delivery over evidence generation.

This paper addresses this gap by proposing the Study Before Intervention Framework (SBIF), an evidence-based governance framework that institutionalizes historical research, architectural investigation, and scientific analysis as mandatory prerequisites for conservation planning, procurement, and physical intervention. Rather than treating research as a supplementary activity, the framework positions knowledge generation as an integral component of public-sector decision-making and long-term heritage stewardship.

The framework is developed through an empirical case study of the conservation-led renovation and adaptive reuse of Wang Chaiya, a former royal residence currently serving as the Department of Provincial Administration Library under Thailand's Ministry of Interior. A multidisciplinary methodology integrating archival research, architectural survey, condition assessment, and scientific investigation was employed. Analytical techniques—including X-ray fluorescence (XRF) elemental analysis, paint stratigraphy, microscopic examination, and X-ray imaging—were used to identify original materials, reconstruct the building's historical development, distinguish original spaces from later alterations, and reveal concealed architectural features. Together, these investigations established the evidence base necessary for conservation planning, procurement, and intervention decision-making.

The findings demonstrate that the principal barriers to conserving non-registered government-owned historic buildings are institutional rather than technical. Existing procurement regulations, budgeting frameworks, reference-pricing mechanisms, and professional fee structures rarely support the research-intensive processes required for responsible conservation. Consequently, historical investigation and scientific documentation are frequently omitted from project scopes, discouraging investment in specialized expertise and gradually eroding the professional ecosystem upon which effective heritage conservation depends.

In response, the paper proposes SBIF as a governance model comprising four interrelated components: evidence generation, evidence integration, evidence-based intervention, and knowledge stewardship, implemented through a seven-stage management process encompassing heritage significance assessment, historical and architectural investigation, scientific documentation, conservation-oriented procurement, evidence-based intervention, adaptive reuse planning, and long-term knowledge management. The framework extends the

Burra Charter's principle of understanding significance before change beyond conservation practice into the domains of public administration, procurement, and institutional governance.

The study argues that investment in understanding publicly owned historic buildings should be recognized as a fundamental public responsibility rather than an optional project expense. It further recommends that governments require all publicly owned buildings more than 50 years old proposed for renovation, adaptive reuse, or major repair to undergo a comprehensive pre-intervention study before project approval or physical work begins. Although developed from the Wang Chaiya project, the Study Before Intervention Framework offers a transferable model for strengthening evidence-based heritage governance in Thailand and other countries facing similar institutional challenges.

Keywords: *study before intervention framework (SBIF); heritage governance; heritage significance; government-owned historic buildings; evidence-based conservation; public procurement; conservation science; adaptive reuse; Thailand*

Session: Day 1 — 23 July 2026

3. Visual Examination of Hand-Painted Portrait Photographs from the Philippines

Nina Lawrence Duenas¹, Willie Estonanto^{2,*}

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Abstract: The lack of color in black and white photographs as well as the issue of color fading encouraged artists and photographers to paint photographs by means of retouching and overpainting that started in Europe in 1841 and the Americas in the 1900s. In the Philippines, hand-painted portrait photographs were first produced in the late 19th century following the popularity of *miniaturismo* oil portraits in the mid-19th century and black and white photography in the late 1850s and 1860s. Research about this art form is few particularly in the Philippines and one of the earliest documentations was written in 1987 by a Filipino art historian Dr. Luciano P.R. Santiago who wrote about a painted portrait photograph produced circa 1870. In order to understand this art form, this ongoing study for an Art History Master's thesis looks into the materiality through a noninvasive visual examination of the painting and photographic components of select painted portrait photographs produced by the photographic studios once located in Manila. This is done by examining the details of overpaint with the aid of raking light, UVA light and optical microscopy as well as the characteristics of photographic print such as presence of baryta layer and silver mirroring, which are characteristics of gelatin developing-out paper, using optical microscopy and portable X-ray fluorescence. Visual documentation of these components confirms the creative collaboration between the artist and the photographer in putting together two distinct media and creating an early form of mixed media art. This preliminary study hopes to encourage further scientific investigations and collaborations for future research.

Keywords: *painted photograph; miniaturismo; photography; mixed media; gelatin DOP*

Session: Day 1 — 23 July 2026

4. Restoring Connections: Art Conservation in the Digital Age

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Abstract: Social media has become an important tool for connecting people with art, cultural heritage, and conservation practices. Platforms such as Instagram, TikTok, Facebook, and YouTube allow museums, galleries, and conservation studios to reach wider audiences while increasing public awareness about the importance of preserving artworks. Through visual and interactive content, art conservation can become more accessible and engaging, especially for younger generations who spend much of their time in digital spaces.

One of the most effective ways to engage audiences is by sharing behind-the-scenes conservation processes. People are often fascinated by restoration activities such as cleaning paintings, repairing damaged surfaces, or uncovering hidden details in artworks. Short videos, before-and-after images, and time-lapse documentation help audiences understand the craftsmanship, patience, and expertise involved in conservation work. This type of content not only creates curiosity but also builds appreciation for the value of preserving cultural heritage.

Digital technology and social media also play an important role in securing the future of conservation professions. In a world increasingly influenced by artificial intelligence and automation, audiences continue to value handcrafted work, artisanal skills, and authentic human experiences. Conservation work represents a unique combination of artistic sensitivity, historical understanding, and manual craftsmanship that cannot easily be replaced by AI. By showcasing these specialized skills online, conservation professionals can build stronger public recognition, attract future practitioners, and create opportunities for collaboration, education, and employment within the field.

Storytelling further strengthens audience engagement by highlighting the cultural significance and emotional value behind artworks and heritage objects. Social media can create communities where people feel connected through shared appreciation for authenticity, history, and preservation. In today's digital era, social media is not only a promotional platform but also an essential educational tool that helps sustain conservation awareness, professional relevance, and cultural identity for future generations.

Keywords: *Sustainability; conservation; profession; society*

Session: Day 1 — 23 July 2026

5. Hidden in Color: Treatment and Scientific Analysis of a 1960s Painted Wood Construction by Irwin Rubin

Victoria Kitirattragarn*, Emily Hamilton, Glennis E. Rayermann, Lorna J. Brundrett, Rebecca Ploeger

Patricia H. and Richard E. Garman Art Conservation Department, SUNY Buffalo State University, Buffalo, NY, USA

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Abstract: Irwin Rubin's (1930–2006) painted wood constructions explore the interaction of color across two- and three-dimensional forms through varied geometric arrangements and vibrant palettes. *Untitled Construction* (1966), bequeathed to The Buffalo AKG Art Museum in 2024, underwent conservation treatment at the Patricia H. and Richard E. Garman Art Conservation Department, SUNY Buffalo State University, in 2025. What began as a routine treatment evolved into a technical investigation and collaboration that revealed new insights into the artist's materials and working methods.

Visible-induced infrared luminescence (IRLUM) imaging demonstrated that areas previously interpreted as localized retouching were instead part of an extensive overpainting campaign, possibly executed by Rubin himself. This discovery reframed treatment decisions and prompted close collaboration among all stakeholders including the Buffalo AKG Art Museum, the Irwin Rubin Estate and Archive, and the Garman Art Conservation Department, emphasizing the role of shared stewardship.

Technical analysis carried out with Pyrolysis–Gas Chromatography–Mass Spectrometry (Py-GC-MS), micro-transmission Fourier Transform Infrared spectroscopy (μ -FTIR), false-color techniques using visible (VIS) and IRLUM images, and X-ray fluorescence (XRF) spectroscopy, was used to characterize the work's materials. Results confirmed the use of acrylic paint and identified several various potential cadmium red pigment formulations containing a range of additives. The unexpected detection of mercury raises questions regarding the presence of a cadmium mercury sulfide pigment or the possible incorporation of mercury-containing fungicides during manufacture.

Informed by these findings and ongoing dialogue with project stakeholders, the treatment improved the sculpture's visual cohesion through dry and aqueous surface cleaning, fabrication of a replacement element, localized filling, and inpainting. This case study demonstrates how technical examination and collaborative decision-making can fundamentally reshape the interpretation and conservation of artworks.

Keywords: *acrylic paints; IRLUM imaging; XRF; μ -FTIR; Py-GC-MS; collaboration*

Session: Day 1 — 23 July 2026

6. Material Analysis and Structural Consolidation of Galileo Chini's Portrait of King Rama VI

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Abstract: The conservation and restoration of Galileo Chini's Portrait of King Rama VI, Vajiravudh (1914 - 1947) successfully achieved its primary objectives in the stabilisation of the artwork's physical structure and the recovery of its aesthetic integrity. A crucial component of this intervention was the formulation of a precise consolidation strategy, strictly dictated by scientific examination.

To comprehend the exact mechanisms of degradation affecting the binding media, targeted research and sampling were initiated. Comprehensive microchemical analyses, including spot tests identifying pyrrole derivatives using p-dimethyl benzaldehyde, alongside negative saponification tests for oils were conducted. These investigations determined that the original binding medium for both the ground and paint layers is a water-soluble protein, highly probably animal glue. Identifying this protein-based binder directly elucidated the painting's most severe condition issues, which are flaking, cupping, and loss of adhesion that can lead to loss of paint layer eventually. Historically exposed to fluctuated temperature and humidity, the climate-sensitive animal glue had embrittled, losing its flexibility and adhesive strength over time.

Addressing the precise nature of the degraded original binder was paramount for developing compatible and highly targeted concepts of conservation. This data guided the structural treatment, pinpointing the necessity for a consolidation material with physio-chemical compatibility to avoid adverse reactions. Consequently, various selected percentages of sturgeon glue were utilised to treat the flaking and cupping conditions. Sturgeon glue was specifically chosen for its exceptional penetrating ability, high adhesive strength at low concentrations, and structural similarity to the original media. By grounding the treatment methodology with scientific evidence, the precise adhesive concentrations were successfully tailored to the varying severities of detachment across the support, thereby securing the structural integrity of the portrait for future exhibition.

Keywords: *Painting conservation; Galileo Chini; Microchemical analysis; Animal glue; Consolidation; Sturgeon glue*

Session: Day 1 — 23 July 2026

7. Living Legacy: Bridging Memory, Materiality, and Conservation through Artist's Daughter Engagement in the Preservation of Pratuang Emjaroen's Artistic Heritage

Norman Verschueren^{1,2,*}, Srisilp Emjaroen³, Kittiporn Jalichandra⁴, Pichayada Katemake^{1,5}, Nawarat Kaew-on¹, Anukul Radsamrong¹, Pakornsit Pungto¹

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Abstract: Recent decades have witnessed a significant shift in conservation theory and practice toward the integration of stakeholders within decision-making processes, particularly in contemporary art conservation. Emerging from participatory and values-based approaches to heritage conservation, these methodologies increasingly recognize artists' families, and associated communities as contributors to the understanding of artistic intent, material histories, and intangible dimensions embedded within artistic creations. In Thailand, however, such collaborative approaches remain relatively underexplored despite the need for culturally grounded conservation frameworks adapted to local artistic contexts. This research presents the conservation strategy of *Rubbish Car* (1976), oil painting by Pratuang Emjaroen, National Thai Artist and a major figure of Thai contemporary art whose practice reflected the political, social, and cultural transformations of the 1970s. Developed through close collaboration with the artist's daughter and family members, the project positions stakeholder engagement as a central methodological component in both the interpretation and preservation of the artist's legacy. Combined with technical examination and material characterization, this collaborative process revealed evidence of direct interventions by the artist on both the canvas substrate and pictorial layer. Rather than concealing or removing these interventions, the conservation strategy sought to preserve them as historical testimonies of the artist's creative process, restoration practices, and material experimentation. Consequently, these interventions became valuable documents not only of the artist's practice, but also of broader histories of contemporary art production and conservation practices in Thailand. Through the convergence of oral histories, family memory, and scientific investigation, this research advocates for a conservation methodology capable of bridging not only the materiality of artworks, but also their associated memories, narratives, and living heritage. By placing artist-family engagement at the center of conservation decision-making, the project proposes a more inclusive and culturally responsive approach to contemporary art conservation in Thailand and Southeast Asia, while reaffirming conservation as a discipline mediating between material preservation, collective memory, and cultural continuity.

Keywords: *Pratuang Emjaroen; Thai Contemporary Art; Stakeholder Engagement; Collaborative Conservation; Materiality and Memory.*

Session: Day 1 — 23 July 2026

8. Internships & Apprenticeships — When Do We Really Graduate?

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Abstract: Conservation is a demanding profession that often requires interdisciplinary knowledge spanning art history, studio practice, chemistry, and the humanities. Challenges to entering a conservation programme frequently include prerequisites, limited programme availability, geographic location, and the cost of study. Due to these high barriers to entry, many students begin conservation training only after obtaining degrees in related disciplines, often supplemented by additional certifications or prior internship experience. Internships and apprenticeships may take place before or after formal conservation training, complementing the academically focused environment of the classroom.

But does the process end upon graduation? Is the job market too limited to absorb the available workforce, or are we perpetuating a perceived demand by continuously producing more emerging professionals? Institutions seek interns and fellows, while graduates seek both experience and stable employment. Entry-level positions often demand mid-level experience, while contract and temporary roles frequently fail to cover living and relocation expenses at the end of the contract. By the time one has assimilated into an organisation and the new neighbourhood, it is often already time to search for the next position.

Even after securing a permanent role while life seemingly regains some stability, administrative responsibilities accumulate on your desk. Time spent away from the workbench contributes to years of employment, but not necessarily to your years of active professional experience. How long do the techniques learned in school remain current before continuous professional development through conferences, workshops, and specialised training becomes necessary? As new skills are integrated into one's practice, questions of ageing, dexterity, and succession planning also emerge. Ultimately, when do conservators truly get to graduate?

Keywords: *internship; apprenticeship; continuous professional development; professional lifespan; succession*

Session: Day 1 — 23 July 2026

9. Digitization of Bee and Spider Collections in the Chulalongkorn University Museum of Natural History

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Abstract: Natural history museum collections are invaluable resources for biodiversity research, taxonomy, ecology, conservation, and the history of science. Among arthropods, bees (Hymenoptera: Apoidea) and spiders (Araneae) are ecologically important groups that contribute significantly to pollination and biological control, respectively. Despite their importance, access to specimen data in Thailand remains limited due to incomplete cataloguing systems, fragmented historical records, and the lack of standardized digital databases. In addition, many Southeast Asian historical collections are currently housed in overseas institutions as a legacy of the European colonial era, restricting accessibility for regional researchers and limiting the use of biodiversity heritage data. To address these challenges, the Bee and Spider Research Unit (BSRU), part of the Chulalongkorn University Museum of Natural History, Bangkok, initiated a digitization project for its bee and spider collections, partly in collaboration with the Global Biodiversity Information Facility (GBIF). The museum currently curates more than 20,000 bee specimens and at least 800 spider specimens, including historically and taxonomically significant materials. The project integrates digital technologies and biodiversity informatics approaches through specimen imaging, label transcription, taxonomic verification, georeferencing, and the establishment of a digital database based on the Darwin Core Standard, with the support of digitizer teams, including current and alumni students as well as research assistants. The database records specimen identifiers, taxonomic identifications, localities, geographic coordinates, events, collectors, and preservation metadata, enabling efficient data retrieval and international data sharing. The project also adapts preservation and curation protocols to Thailand's tropical climate to minimize fungal growth and insect pest damage. By transforming physical museum collections into accessible digital heritage resources, this initiative demonstrates how digital technology and data standardization can enhance biodiversity heritage management, support global scientific collaboration, and expand future applications of museum data in ecological and conservation research.

Keywords: *arthropods; biodiversity data; biodiversity informatics; natural history museum*

Session: Day 1 — 23 July 2026

10. 3-Dimensional Insect Specimen Documentation and Production for Educational Purpose and Outreach in a Household Scale

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Abstract: Despite the well-known and focused megafauna in conservation, insects are one of the animals living closest to humans that have been long overlooked and in need of more conservation. However, they are proven to be the most diverse, possibly up to five million species, and one of the most beneficial groups of organisms in the world; e.g., bees provide pollination, dung beetles and flies offer cleaning services, and others contribute to the limitless roles that ensure the survival of the ecosystem that later benefits humanity as a whole. The significance of these organisms is big, but the size of these organisms is typically minuscule. The conventional reaching-out program in the insect topic consists of various image sets or slides, and selected dried insect specimens pinned in a shadow box or live ones. The insect specimen itself is small and very fragile. The shadow box needs proper lighting to clearly present the specimen, and live ones are prone to mass touching or can inflict injury to both humans and insects. These difficulties can make the tendency of insect studies a boring and insignificant subject to most of the crowd. The fabrication of insect models offers a solution and improvement to the problem by being large enough to be noticed and observed closely, and to present the surface articulation of the specimen through touching interaction. In this statement, we would like to discuss the approach in making and ways to reach out by using enlarged three-dimensional insect models using modern technology of 3D visualization and modern fabrication techniques in the household scale to improve the teaching and learning experience for the reach-out programs and their contribution to conservation.

Keywords: *Insect; Biodiversity; Fabrication; Three-dimensional learning object; 3D scanning*

Session: Day 1 — 23 July 2026

11. Color Vision Factors and Color Value Collection in Cultural Heritage Research and Conservation

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Abstract: Color is a fundamental characteristic of cultural heritage objects and plays a vital role in their interpretation, documentation, and conservation. Paintings, manuscripts, textiles, ceramics, sculptures, and archaeological artifacts derive much of their historical, artistic, and cultural significance from their visual appearance. Accurate color evaluation is therefore essential for understanding original materials, detecting deterioration, assessing conservation treatments, and preserving the authenticity of cultural heritage for future generations.

Human color perception is influenced by numerous physiological and environmental factors. Age, visual adaptation, observer experience, and color vision deficiencies can all affect how colors are perceived and interpreted. For example, age-related changes in the eye may alter sensitivity to certain wavelengths, while color vision deficiencies can reduce the ability to distinguish specific hues. Consequently, visual assessments performed by different conservators or researchers may produce inconsistent results. Understanding these perceptual variations is important for achieving reliable documentation and supporting objective conservation decisions.

Lighting conditions are among the most significant factors affecting color perception. The appearance of an artifact can vary considerably under different illumination sources because each light source possesses a unique spectral power distribution. Light intensity, color temperature, viewing angle, and surrounding colors can also influence visual perception.

To complement visual assessment, scientific color measurement techniques provide objective and repeatable data. Spectrophotometers with different geometries are selected according to object characteristics. 45°/0° spectrophotometers closely simulate human visual observation and are commonly used for paintings, manuscripts, and printed materials. Integrating sphere spectrophotometers (d/8° geometry) minimize surface effects and are suitable for textiles, ceramics, and irregular surfaces. Multi-angle spectrophotometers measure color from several viewing angles and are particularly useful for metallic pigments and iridescent materials.

By integrating knowledge of human color vision with objective color measurement technologies, researchers and conservators can improve documentation accuracy, evaluate color changes more effectively, and preserve the visual authenticity of cultural heritage objects. This combined approach strengthens scientific research and supports sustainable conservation practices in cultural heritage preservation.

Keywords: *color vision; color measurements; color value; color perception; spectrophotometer*

Session: Day 1 — 23 July 2026

Day 2 — Friday, 24 July 2026

12. Characterization of Thai Mural Paintings from Mid to Late Ayutthaya Period (1488–1688): Case Studies of Wat Chaiwatthanaram, Wat Chong Nonsi and the Residential Building of Somdet Phra Phutthakosajarn

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Abstract: Thailand's Cultural Heritage faces significant challenges in preserving traditional mural paintings, given their historical and artistic importance. To ensure effective conservation, it is crucial to investigate the sources, categories, properties, and degradation processes of these materials over time, as well as the underlying causes and mechanisms of their alterations. This understanding is essential for selecting compatible materials and appropriate conservation methods, in alignment with international standards for heritage preservation.

The present study focuses on the characterization of Thai pigments and binders used in secco techniques, as well as the environmental factors contributing to the degradation of murals from the Mid to Late Ayutthaya period (1488–1688). Specific sites under investigation include Wat Chaiwatthanaram (UNESCO site) and the residential building of Somdet Phra Phutthakosajarn in Ayutthaya, and Wat Chong Nonsi in Bangkok. These sites represent unique forms of ancient Thai artistic heritage, revered for their beauty and mysticism. A main aim of this work is the identification of key pigments such as black, green, and red which were fundamental to the Ayutthaya period's color palette. To this purpose, as a first step, non-invasive investigations with a colorimeter were carried out on site, and collected colorimetric data were analyzed to have a first overview of the possible pigments. As a second step, small fragments taken from the sites were analyzed with a range of advanced techniques, including Optical Microscopy, Micro-Raman Spectroscopy, Scanning Electron Microscopy-Energy Dispersive X-ray Spectroscopy (SEM-EDS), Micro-Fourier Transform Infrared (micro-FTIR) spectroscopy and Electron Paramagnetic Resonance (EPR). Additionally, the study examined the mortar used as the ground layer in Wat Chaiwatthanaram. This research is complemented by documentary studies and qualitative fieldwork, which includes interviews with conservators and restorers involved in safeguarding Thailand's Cultural Heritage. While the study is limited to samples from selected sites, the findings will contribute to an evidence-based understanding of the materials used in 16th-century Thai mural painting. The knowledge gained highlights the adaptive strategies employed by artisans in a humid climate, characterized by heavy rainfall, river basins, and annual flooding. Additionally, the study reflects the impact of present-day environmental changes on heritage buildings.

In summary, this study offers valuable insights into the preparation of local Thai materials used in historical paintings, while also contributing to the improved management and protection of cultural heritage. The findings aim to ensure the preservation of Thailand's artistic legacy, safeguarding its intrinsic values for future generations.

Session: Day 2 — 24 July 2026

13. In Between the Layers: Technical Study of a Contemporary Vietnamese Lacquer Painting

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Abstract: Leisure Time is a large-scale four-panel lacquer-on-wood painting created by Hawaiian-Vietnamese artist Tim Nguyễn in 2008. Within only 14 years, the painting developed unusual surface discoloration: bright yellows shifted to dull browns, greens darkened, and oranges turned brown. Although Asian lacquer has been widely studied, limited published research addresses Vietnamese lacquer painting as a modern painting medium, particularly the relationship between materials, techniques, and degradation mechanisms. In 2023, one panel was transported from the artist's studio in Hawaii to the Garman Art Conservation Department at SUNY Buffalo State University for technical study and conservation research.

Vietnamese lacquer, or laccol, is derived from the sap of *Toxicodendron succedaneum*. It cures under high humidity through polymerization and is highly durable when fresh, but aged lacquer films can become sensitive to light and humidity fluctuations. Vietnamese lacquer painting, known as *son mài*, is typically built from multiple layers of pigmented lacquer and decorative materials, including metal leaf, mother-of-pearl, and eggshell. The final image is revealed through sanding and polishing. Traditional restoration often uses fresh lacquer, but this approach is irreversible and may age differently from the original surface.

This study investigated the painting's materials, layer structure, and degradation using multimodal imaging, x-radiography, infrared reflectography, cross-sectional analysis, SEM-EDS, XRF, Raman spectroscopy, and THM-Py-GC/MS. Custom lacquer mockups were also created, light-aged, and exposed to sea salt to explore possible causes of discoloration. An interview with the artist provided additional insight into materials and technique.

The results suggest that light-induced degradation, combined with arsenic-containing pigments, was the primary cause of the observed color changes. Aged samples also showed light-driven silver migration to the lacquer surface, where silver reacted with sulfur-containing pigments to form inclusions. Initial testing of conservation-grade synthetic varnishes, including MS2A, Regalrez 1094, and Paraloid B-72, showed promising potential as reversible alternatives to traditional lacquer coatings.

Keywords: Vietnamese lacquer painting; multimodal-imaging; XRF; cross-section; Raman spectroscopy; THM-Py-GC/MS

Session: Day 2 — 24 July 2026

14. Bio-Coating Solution for Paper and Artwork Preservation

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Abstract: NEXTBOND has developed a cellulose-based coating for the conservation of complete books, documents, photographs, and paper-based artworks. Derived from cellulose, the principal structural component of paper, the coating provides material compatibility with paper substrates while improving water resistance and mechanical strength. These properties help reduce deterioration caused by moisture, repeated handling, environmental exposure, and gradual weakening of paper.

A key feature of the technology is its ability to treat an entire bound book through direct immersion. During treatment, the pages are gently loosened or fanned to allow the coating solution to penetrate between the pages and throughout the book block, promoting more uniform protection. Individual sheets, documents, and photographs may also be treated by immersion. The coating is also applicable to paper-based artworks, including watercolor paintings, chalk drawings, and charcoal works. It helps stabilize fragile surfaces, reduce pigment loss, and protect artworks from moisture and handling while maintaining their visual characteristics.

The technology is suitable for libraries, archives, museums, private collections, and conservation laboratories. By combining cellulose compatibility, whole-book treatment, water resistance, mechanical reinforcement, and environmental responsibility, NEXTBOND offers a practical approach for extending the service life of historically, culturally, and artistically significant paper-based materials for future generations worldwide.

Keywords: *book conservation; cellulose-based coating; paper-based artworks; preventive conservation; artwork protection*

Session: Day 2 — 24 July 2026

15. An Integrated Analytical Approach to the Examination and Stabilization of a Polychrome Wooden Architectural Fragment

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Abstract: An unprovenanced polychrome wooden architectural fragment from the Archives of the Archdiocese of Bangkok was investigated to determine its material composition, manufacturing technology, probable provenance, and conservation requirements through an integrated analytical approach. The absence of historical documentation and previous conservation records necessitated the use of complementary non-invasive and micro-invasive techniques to support the provenance research and the evidence-based conservation. Comparative stylistic assessment suggests that the object is likely a twentieth-century corbel bracket of Indian origin, originally forming part of a larger architectural arch. Three-dimensional photogrammetry using the Polycam platform enabled high-resolution digital documentation and condition mapping while minimizing handling of the highly friable surface. Digital microscopy provided detailed examination of the polychromy, stratigraphy and surface morphology. Preliminary wood anatomical analysis identified the substrate as a tropical hardwood. Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (ATR-FTIR) indicated a cellulosic substrate together with organic materials and polysaccharide gum binding media. X-ray fluorescence spectroscopy (XRF) enabled elemental characterization of the polychrome layers, supporting the identification of a zinc white ground layer, which was further confirmed by ultraviolet-induced visible fluorescence (UVA) technical photography. Conservation treatment prioritized stabilization of the deteriorated polychrome surface. Surface deposits were removed using soft brushes in conjunction with a HEPA-filtered low-suction vacuum system (100 hPa) before consolidation with 1% (w/v) Klucel G, a hydroxypropyl cellulose polymer, in anhydrous ethanol. The consolidant was selected for its high glass transition temperature, favorable ageing behavior, and expected performance under the elevated temperature and humidity conditions anticipated for the object's future storage and display. This preliminary investigation demonstrates how an integrated scientific approach can elucidate the materials, construction techniques, and probable provenance of undocumented architectural heritage while providing a robust basis for informed conservation decision-making.

Keywords: *photogrammetry; XRF; ATR-FTIR; architecture; consolidation*

Session: Day 2 — 24 July 2026

Author Index

Vu Bac Do.....	25
Nina Lawrence Duenas	15
Monica Gunawan	16
Pankaew Khamsrichan.....	24
Victoria Kitirattragarn.....	17
Arpichart Kittimethaveenan.....	12
Tam Laovichaya.....	18
Chutiparn Lertvachirapaiboon	26
Kavee Sirichantakul	22
Chawatat Thanoosing.....	21
Yuwadee Thiangthangtum	23
Prat Tinrat	13
Norman F. C. Verschueren	19
Fang Zheng Ong	20