# 49th IPMI Annual Conference 2025

Connect, Learn, and Build Relationships

Scottsdale, Arizona, USA 7 - 10 June 2025

ISBN: 979-8-3313-2539-8

# Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by International Precious Metals Institute All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact International Precious Metals Institute at the address below.

International Precious Metals Institute 5101 North 12th Avenue, Suite C Pensacola, Florida 32504 USA

Phone: (850) 476-1156 Fax: (850) 476-1548

www.ipmi.org

# Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400

Fax: 845-758-2633

Email: curran@proceedings.com Web: www.proceedings.com

#### A: World of Precious Metals Finance - PGMs

Supply - Demand = Price +? ... Unpacking the Macro, Physical & Paper Flows and Sentiment in PGMs ... 2

[Nicky Shiels, MKS Pamp]

PGM Demand; Politics and the Fickle Finger of Fate. Shifting Sands and the Headaches for the

Automakers ...9

[Rhona O'Connell, StoneX]

PGM Mine Supply: Challenges and Opportunities ...18

[Yana Stunis, Valterra Platinum]

Flexibility or Fragility? How Secondary Supply Influences PGM Price Elasticity ...25

[Wilma Swarts, Metals Focus]

# **B: Precious Metals and Clean Energy**

PGM Applications in Renewable Hydrogen-Related Projects: South African Case ...33

[Dmitri Bessarabov, HySA]

The Circularity Whitepaper: Showcasing an Industry Ready for the Future ...43

[Marge Ryan, Johnson Matthey]

IPMI Precious Metals Innovation Challenge: Challenges and Opportunities ...51

[Mark Caffarey, Umicore]

### C: Financial and Risk Management of Precious Metals

The Evolving World of Risk and Risk Transference ...58

[Simon Codrington & Joe Pennock, Risk Strategies]

### D: World of Precious Metals Finance - Gold & Silver

From a Ratio of 100:1 to a Record Deficit: Making Sense of Silver ...68

[Philip Newman, Metals Focus]

Asian Physical Markets' Response to \$3,000 Gold ...73

[Nikos Kavalis, Metals Focus and SBMA]

Gold & Silver Financing: Flying Blind in a Storm of Tariffs ...81

[Amaryllis Gryllaki, Wells Fargo]

The Future of Digital Gold ...87

[Joe Cavatoni, World Gold Council]

# E: Sustaining Programs Across the Precious Metal Value Chain

ESG as a Business Imperative – Creating Value Through Sustainability ...93

[Jaikishan Venkat, Hindustan Platinum]

# F: Responsible Sourcing

LBMA Sustainability & Responsible Sourcing Outlook ...115

[Ed Blight & Alan Martin, LBMA]

LPPM's Responsible Sourcing Programme ...123

[Jonathan Butler, LPPM]

AML Compliance ...128

[Deborah Thoren-Peden & Connie Fenchel, Pillsbury Winthrop Shaw Pittman LLP]

# G: PGM Refining Technologies and Autocat Recycling Trends

OEM vs. Aftermarket: An Evaluation and Analysis ... 131

[Ben Davis, Davis Recycling]

Recovering Precious Metals from Homogeneous Catalysis Waste in Liquids ...156

[Martijn Mertens, Indaver]

New Methods for PGMs Extraction - Updates on pH7's Process ...167

[Luke Ehman, pH7 Technologies]

PGM Refining: A Journey from Innovation to Rare Excellence ...173

[Ankit Gupta, Hindustan Platinum]

### NH: New Horizons - The Future of Precious Metal Technology: Part I

A Precious Technology - Benefit and Simplicity of Recovering Precious Metals from Scrap ...183

[Sofia Violi, Violi Macchine]

A.I.D. Artificial Intelligence Detection ...194

[Filippo Piomboni, Tera Automation]

HSR® - High Surface Refining: A New Development in Precious Metal Refining Process ... 204

[Federico Padrono Martini, IKOI]

# NH: New Horizons - The Future of Precious Metal Technology: Part II

Tera Automation's Disruptive Technology for Coin and Bullion Production ...212

[Luca Fiorini, Tera Automation]

Fine Chemicals Industry (Faggi Enrico) Using Molecular Recognition Technology™ (MRT™) ...222

[Steven Izatt, IBC Advanced Technologies]

Innovative Patented Hydrometallurgical Process for the Recovery and Extraction of Rhodium,

Platinum and Palladium ... 227

[Nicolò Maria Ippolito, University of Aquila, Italy]

Rare Earth Recycling - An Untapped Source in PGM Refining ...236

[Alexa Schmitz, REEGen, CEO & Co-Founder]

#### **St: Student Award Winners Presentations**

Optimizing PEMFC Performance with Platinum-based Catalysts for Zero-Emission Heavy-duty

Transportation ... 246

[Maria Chiara Massaro]

Three-Atom-Wide Gold Quantum Rods with Near-Infrared Emission ... 253

[Lianshun (Evan) Luo]

Nature-Inspired Ligand Design for Pd-Catalyzed Cross-Couplings in Water ... 259

[Erfan Oftadeh]

Circular Economy for Precious Metals Catalysts ... 268

[Dany Velaso]

Interactions Amongst Alkali and Gaseous Promoters in Ag/Al2O3 Ethylene Epoxidation Catalysts ...274

[Michael Gresh-Sill]

Homogeneous-Heterogeneous Bifunctionality in Pd-Catalyzed Vinyl Acetate Synthesis ...293

[Deiaa M. Harraz]

Advancing Pd(II)-NHC (N-Heterocyclic Carbene) Complexes in Late-Stage Functionalization (LSF) of

Pharmaceuticals ...303

[Shiyi Yang]

# Mb: Member's Meeting

Annual Meeting of The Members of IPMI ...315

[Call to Order: Dr. Jonathan Butler, President]