47th IPMI Conference 2023

Scottsdale, Arizona, USA 10 - 13 June 2023

ISBN: 978-1-7138-7719-6

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© (2023) by International Precious Metals Institute All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

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

IPMI 47TH ANNUAL CONFERENCE PROCEEDINGS

Annual Meeting of the Members of IPMI Alternative Energy and Future Impact on

Annual Meeting of the Members
Audit Committee Report
Treasurer's Report
Executive Director's Report
Digital Transformation IPMI Portal and
Website Update
Nominating Committee Report
Membership Report

Session AWorld of Precious Metal Finance

PGM Demand in a Changing Economic Landscape...1 Jonathan Butler, Mitsubishi

Supply-Implications of Tightening Margins on Miners and Recyclers Expansion Plan...16 Wilma Swarts, Metals Focus

Session B Alternative Energy and Future Impact on PGMs

PGM in the Hydrogen Economy-Addressing Availability Challenges...25 Stewart Brown, Johnson Matthey Alternative Energy and Future Impact on PGMs...35

Matt Watson, Precious Metals Commodity Management

Session C

World Of Precious Metal Finance - Gold and Silver

The Gold Market Outlook...56 Rohit Savant, CPM Group

Silver Has Gone...61 Bart Melek, TD Securities

Session D Sustainability ESG

Gold Industry Responsible and Sustainability Principles...68 John Mulligan, World Gold Council

ESG Metrics and Reporting Platform...73
Malcolm Harris, Novisto

Digitalization and Tokenization Gold Provenance Platform (Paper Unavailable) Nirali Shah

Session E

Responsible Sourcing

Responsible Sourcing...78 Neil Harby, LMBA

Accepting Responsibility-the LPPM's Program and the PGM Supply Chain...84

Jonathan Butler, for the LPPM

US Corporate Transparency Act..92 Randy Weinerman, Mitsubishi

Session FPGM and Auto Cat Recycling and Refining

Circular Economy for the Green Transition-An Overview of Ph& Technologies Sustainable Process...98 Mohammed Doost, pH7 Technologies

The Future of Precious Metals Recovery-An Introduction to Regenx...103 Don Weatherbee, Regenx

IPMI 47TH ANNUAL CONFERENCE PROCEEDINGS

Session G Jewelry

A Holistic Approach to Responsible Sourcing and Supply Chain Integrity in the Jewelry Industry...109 Dr. Gaetano Cavalieri, CIB/O

Gold Demand for Jewelry-Past, Present, Trends, and Future Possibilities...116 Joe Cavatoni, World Gold Council

Sourcing the Jewelry Supply Chain Ethically – Today and tomorrow...127

Elan Farbiarz, Italpreziosi

Cybersecurity Workshop

Cybersecurity Roadmap Workshop...130 Scott Schwartz, Fidelitrade

SAC Workshop

A Deep Dive into Method Validation...145 Jonathan Jodry, Metalor

New Horizons

Achieving Iridium Sustainability from Spent Secondary Sources...169 Steve Izatt, IBC Advanced Technologies

Mechanical Operations for Producing Silver Bars: A More Sustainable Alternative...178 Federico Padrono Martini, IKOI

Vacuum Tunnel Furnace for Continuous Production of Pd/Pt/Au/Ag Bars (Paper Unavailable) Luca Fiorini, Tera Automation

Using the Membrane Biofilm Reactor to Recover Platinum Group Metals, Rare Earth Elements and Valuable Materials as Nanoparticles from Wastewater...187

Brad Lusk and Calvin Ray, Precient

Crystalline Osmium Business (Paper Unavailable) Ingo Wolf, Osmium Institute

Technologies

Student Research

Carolin Wahl:

High Throughput Materials Discovery with Nanoparticle Megalibraries...195

Zengran Sun:

Reversible Surfactants for Preparation of Uniformed Sized Thermally Stable and Efficient Nanoscale Gold Catalytsts...200

Schuyler Shi:

Durable and High Performance Proton Exchange Membrane Electrode Assembly for ZrOx Decorated Pt Nanoparticle...207

Tongliang Zhou:

Design Synthesis and Applications of Sterically– Defined Biaryl L Shaped NHC Ligands for Transition Metal Catalysts...212

Christopher Lamartina:

Modular Synthesis of Unnatural Peptides via Rh(III) Catalyzed Diastereoselective Three Component Carboamidation Reaction...220

Anna Brenner: Catalytic Strategies for Plastic Waste Rehabilitation...246