

CRITICAL MINERALS

Why are they the key to a net zero future?

ABOUT THIS EVENT

Welcome to our first Science Alumni Event of 2024. It is a great opportunity for you to reconnect with the Faculty of Science and your fellow alumni. The Ignitor events are designed for the benefit of lifelong learning of our alumni, by providing access to new research undertaken by the Faculty of Science.

At this event, our researchers will talk about what critical minerals are and why they are essential for our transition to clean energy technologies and a net zero future. They will also elaborate on the critical minerals landscape in Australia, and how Australia can lead the exploration and production of these minerals and the impact it has on the global economy and geopolitics.

Our panel will further explain how Monash Science researchers are looking at innovative and sustainable solutions to address the global critical mineral crisis.

EVENT DETAILS

Title: Critical Minerals: Why are they the key to a net zero future?

Time: 5.30 - 8.30 pm
(Registration starts at 5.15 pm)

Location: Monash Law Chambers,
555 Lonsdale Street, Melbourne, VIC
3000

Panellists:

Professor Andrew Tomkins - School of Earth Atmosphere and Environment

Associate Professor Vanessa Wong - School of Earth Atmosphere and Environment

Dr Andrew J Friedrich
Senior Lecturer and Geologist - School of Earth Atmosphere and Environment

Moderator:

Mary Harris (Alum) - Sustainability Geoscientist - Newmont

CRITICAL MINERALS: WHY ARE THEY THE KEY TO A NET ZERO FUTURE?

Critical minerals such as Copper, Lithium, Nickel, Cobalt and rare earth elements are essential components in many of today's rapidly growing clean energy technologies, electric vehicles, wind turbines, solar panels etc.

These minerals are much more difficult to find, extract and process than other metals, and are sometimes located in environmentally sensitive areas.

Our panel will talk on these topics,

- What are critical minerals and why is there a critical mineral crisis?
- Can we ever be mining free in the future?
- How can we mine and process minerals sustainably?
- Responsible mining and thorough effective remediation after mining.

EVENT PROGRAM: 21 March 2024

5.15 - 5.45 pm

Registration / Pre-event Networking

5.45 - 5.50 pm

Welcome by Alumni Engagement Manager, Udeshika Wijewardena

5.50 - 6.00 pm

Faculty Update by the Dean of the Faculty of Science, Professor Jordan Nash

6.00 - 6.35 pm

Speaker Presentations

6.35 - 7.00 pm

Q & A Session

7.00 - 7.05 pm

Thank You

7.05 - 8.30 pm

Networking

ABOUT THE SPEAKERS & MODERATOR



PROFESSOR ANDREW TOMKINS

**Earth & Planetary Sciences
Deputy Head - School of Earth,
Atmosphere and Environment - Monash
University**

Andy's research focuses on Economic Geology, which is all about understanding how, when and where critical mineral ore deposits form. His published ore deposit formation models are relied on by exploration geologists to find new ore resources.

Andy is the recipient of several fellowships, and is a Lindgren Fellow of the Society of Economic Geologists. He won the Waldemar Lindgren Award in 2008, and the SEG Silver medal in 2021, both international awards from the Society of Economic Geologists.



ASSOCIATE PROFESSOR VANESSA WONG

**Soil and Land Management
School of Earth Atmosphere and
Environment - Monash University**

Vanessa's research focuses on understanding how land management and environmental change affects soil biogeochemical cycling in natural and human modified systems, which include agricultural and mining environments. She studies the causes of degraded and contaminated land and develops methods to remediate these soils, and the processes and factors that influence soil carbon cycling.

Vanessa is currently a member of Science and Technology Australia's Policy Committee, the Editor in Chief for the journal Land Degradation and Development, Vice Chair of the Working Group for Acid Sulfate Soil - International Union of Soil Science.

MODERATOR - MARY HARRIS

**Sustainability Geoscientist at Newmont
Alum BSc (Hons) (Geoscience,
Structural Geology, Geo-Physics) 2008**

Newmont is a global gold and copper exploration and mining company. Mary's role applies her Geoscience and Innovation expertise to sustainability across the business, and focuses on integrating sustainability values into long term strategy and unlocking sustainability data for decision making.



DR ANDREW J FRIEDRICH

**Senior Lecturer and Geologist
School of Earth Atmosphere and
Environment**

Andrew is a chemist by training and now applies these skills to solve challenges in the Earth and Environment Sciences. His research focuses include developing green technologies to extract selective minerals from ores.

He is currently the Monash lead on two multinational grants to recover critical minerals from mine tailings and waste rock in a carbon-neutral way.

Since joining Monash in 2015, he has received an ARC Discovery Early Career Research Award to develop sustainable methods for unlocking nickel and cobalt from laterite ore.

Mary was an exploration geoscientist before moving into sustainability. Prior to her current role she spent five years with Newcrest Exploration where she led the Technology & Innovation Team trialling and embedding emerging technologies for faster and smarter discoveries applied to gold and copper.