

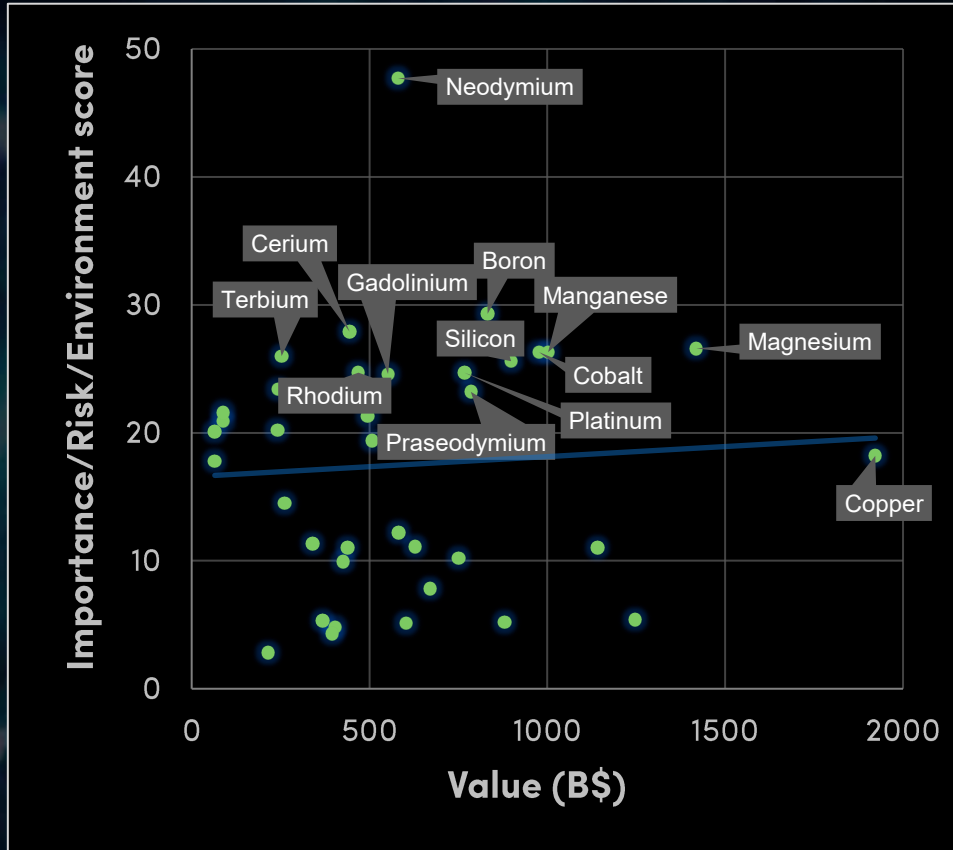


RARA  
FACTORY

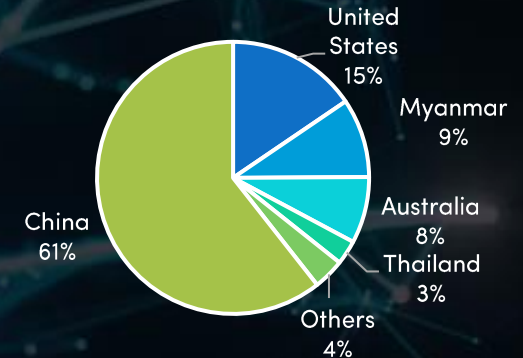
Cracking the code to revolutionary materials  
with physics-powered AI



# The problem



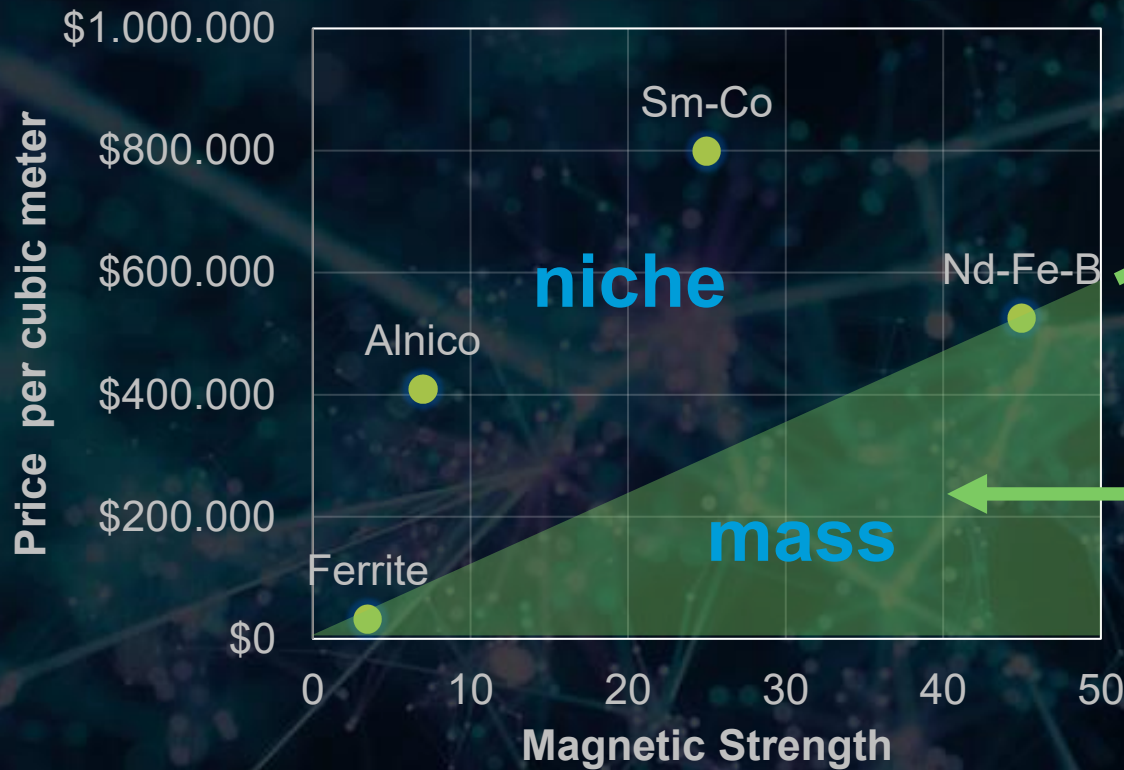
## Global Distribution of Rare Earths Production



- Trillion-dollar industries rely on a **limited supply of critical raw materials**
- Most of these **key materials** are not in the Western World
- A **geopolitical, environmental and economic threat** to our industries



# Permanent Magnets



beyond  
neodymium

from niche to  
mass markets



# Current approaches fail

## The old way – Mining & Recycling

- High **pollution & energy costs**
- Mining likely unfeasible with modern-day **environmental policies**
- Recycling **not scalable**

## Material discovery – AI-based prediction

- Number of possible combinations of materials:  **$10^{80}$**
- No AI approach has succeeded so far – resulting materials are **only functional in theory** but falter in situ
- Reason: Material combinations are **more than the sum of their parts**





# Vision

**Replace all critical materials**  
with compounds made of clean  
and abundant elements



# Our *patent-pending* technology

Patent office report on Jan 31, 2025: all claims new and inventive

Our proprietary algorithm reveals **fractal clustering of similar materials (tree-like)**!

Algorithm tested on the **largest database worldwide of organic materials (OMDB)**, AND on one of the largest **database of inorganic materials (AFLOW)**

Our own **physics-informed AI generates feasible materials with impressive reliability**





# Our one-of-a-kind process

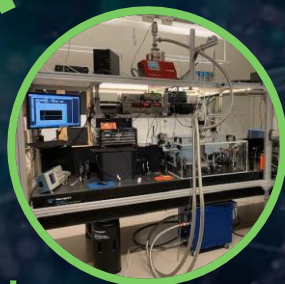
Computational  
Material  
Discovery



High/throughput material  
synthesis and characterization

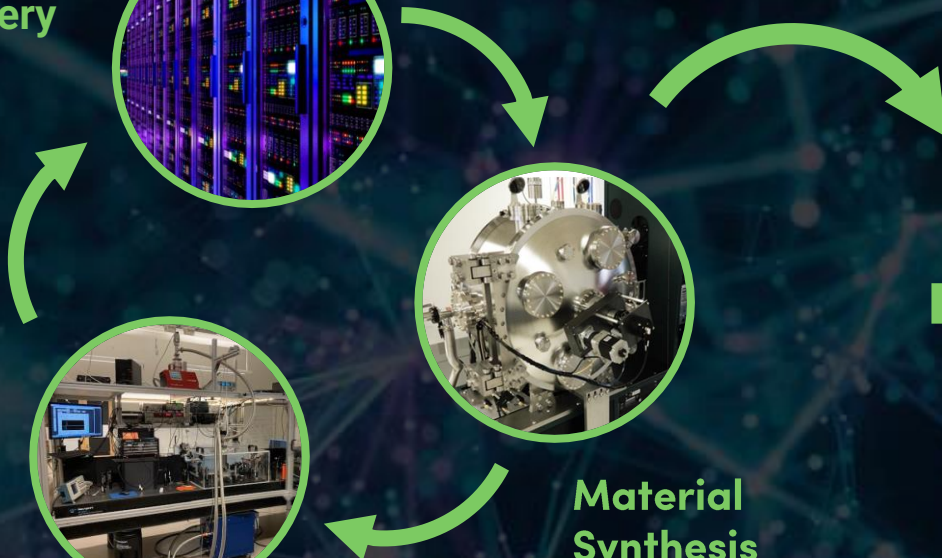


Patentable  
new material



Materials  
Characterization

Material  
Synthesis















**Stefano Bonetti**  
Ca' Foscari  
*Lead Founder & CTO*



**Michele Bugliesi**  
Ca' Foscari  
*Founder & CEO*



**Guido Caldarelli**  
CNR / Ca' Foscari  
*Founder & Sci Advisor*



**Andrea Migliorini**  
Ca' Foscari  
*Senior Scientist*



**Alexander Balatsky**  
UCONN / NORDITA  
*Founder & Sci Advisor*



# TEAM

**Jacopo Moi**  
Ca' Foscari  
*Research Engineer*



**Filippo Bergamasco**  
Ca' Foscari  
*Sci Advisor*



**Davide Spallarossa**  
Ca' Foscari  
*Research Engineer*



**Ludovico Bianchi**  
Bocconi  
*Business & IP*





RARA  
FACTORY

Cracking the code to revolutionary materials  
with physics-powered AI