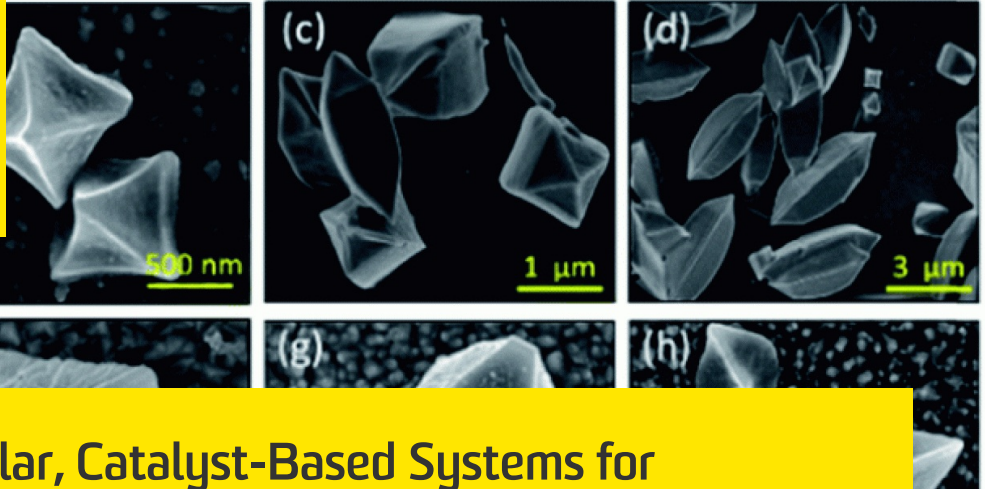




UNSW  
SYDNEY



## Site-Specific, Modular, Catalyst-Based Systems for Environmental Remediation

**Novel catalysts have been developed and these form the basis for new approaches to air and water purification. Adsorptive and catalytic materials can be engineered to exhibit defined performance parameters and then incorporated in modular systems designed for site-specific (portable or fixed) and capacity-specific requirements.**

### Competitive advantage

- Newly developed catalyst-based materials with outstanding performance characteristics
- Capacity to tailor the properties of these materials for adsorption of heavy metals, catalytic reduction of heavy metal oxides, and/or catalytic decomposition of inorganics and organics
- Incorporation of these as core of individual modules for removal of specific individual or groups of species
- Capacity to combine modules for remediation of site-specific contaminants
- Capacity to incorporate other modules (e.g., filtration, UV irradiation, ultrasound) into system
- Capacity to design both portable and fixed-location modules
- Feasibility for temporary or permanent location in remote locations using solar power
- Capacity to design modules for different capacities, from domestic- to urban-scale

### Impact

- These materials and the modules that can be constructed around them have the capacity to revolutionise environmental remediation because they provide the capacity to design multiscale systems for site-specific contamination types and levels. These technologies can be applied to both air and water purification and they are applicable to both inorganic and organic pollutants.

### Successful outcomes

- These newly developed materials have demonstrated outstanding performance capabilities in the elimination of carbon monoxide
- A complete miniaturised air purification system for incorporation in a benchtop-size in vitro embryo incubator was designed and trialled successfully for a multinational biomedical company

### Capabilities and facilities

### More Information

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- Capacity and facilities required to design, fabricate, characterise, and test materials with properties specific to the requirements for adsorption and catalysis
- Capacity to design complete multimodule systems
- Capacity in processing modelling to enable system scalability

## **Our partners**

- Vecor Australia
- Chase Mining Ltd