



**UNSW**  
SYDNEY



## High Temperature Materials

**Development of high-temperature materials resistant to high temperature corrosion; with application in gas turbine engine components, particularly high-pressure turbine blades and rotors, which are exposed to harsh environments.**

### Competitive advantage

- One of the world's leading research groups in the field of high temperature corrosion and high temperature materials development
- Extensive research and development experience, academically and in industry, in high temperature alloys

### Impact

- Increasing the lifetime of materials in corrosive environments at high temperature
- Corrosion resistant high temperature materials are essential for many important industries, e.g. power generation (coal-fired electricity, solar thermal energy), and defence

### Successful applications

- Metal dusting prevention for Haynes International (USA) and Exxon Mobil (USA)
- CO<sub>2</sub> corrosion in gas cooled nuclear reactors (AGR) for EDF (UK)
- Alloys to resist hot carburising-sulfidising gases in processing Queensland shale oil

### Capabilities and facilities

- Excellent facilities, particularly in the field of corrosion by mixed gases, including:
- Arc-melting apparatus
- Thermogravimetric analysers
- High temperature flow reactors with mixed gas control systems

### Our partners

- Oak Ridge National Lab, USA
- CIRIMAT-ENSIACET, France
- Forschungszentrum, Juelich, Germany
- Karl-Winnacker-Institute DECHEMA, Germany

### More Information

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