



Curtin University

CURTIN CORROSION CENTRE



INDUSTRIAL TRANSFORMATION TRAINING CENTRE FOR CORROSION PREVENTION

Make tomorrow better.



Industry, research organisations and policymakers working together to deliver sustainable corrosion-management strategies that increase safety and reduce cost and environmental impact.

Join a network of Australia's leading scientists in corrosion, materials engineering and computational science in their effort to quantify, address and minimize the impact of corrosion and materials degradation in Australia's economy through a new Industrial Transformation Training Centre for Corrosion Prevention.

The Australian Government will fund the Industrial Transformation Training Centre (ITTC) for Corrosion Prevention through the Australian Research Council (ARC). The ITTC will harbour the development of enduring strategic partnerships between research organisations, government policymakers and industry to mitigate the ongoing impact and cost of corrosion on industry assets, community infrastructures, and the Australian economy and environment. The ITTC will strengthen and expand world-leading capabilities in corrosion research in the country and consolidate Australia as the first nation to tackle corrosion holistically, through education, research, technology development, industry engagement, economics, and policy.

WHY an ITTC for Corrosion Prevention?

The ITTC will catalyse the nation's transformative approach to corrosion mitigation practices and corrosion management strategies, delivering sustainable and innovative solutions. The ITTC will educate the next

generation of professionals with a unique skill set that will allow them to apply science to solving real-world and constantly changing challenges.

Effectively, we know that a 10% reduction on the economic cost of corrosion is possible by implementing current best practices and corrosion know-how. Indeed, numerous international studies show that deploying readily available materials, products, methods, and technologies will drastically reduce the impact of corrosion on operational costs and safety as well as carbon footprint.

Furthermore, our ITTC will combine cutting-edge computational science approaches, such as machine learning and digital twins, with industry 4.0 strategies to manage corrosion. The close collaboration between industry and academia will produce innovative solutions. The corrosion mitigation measures will be universal with significant industrial applications and, more importantly, will affect the daily life of us as citizens. Our technologies will be ubiquitous in public spaces and households, in our roofs, in our cars, in our streets. They will reduce

the severe impact of corrosion on our economy, with an estimated annual cost of 3.4% of Australia's GDP. This cost is larger than Australia's investment in either healthcare, education or research.

An interdisciplinary approach

A drastic and sustainable reduction in the economic and societal impact of corrosion requires the intimate collaboration between the industries that face corrosion challenges, policymakers, and regulatory bodies, as well as academia. The proposed ITTC will bring together leading national and international organisations and industry partners. With ARC's support, we will address the most insidious corrosion challenges faced by Australian businesses and communities. The ITTC will educate professionals across various industry sectors, including, e.g., oil and gas, mining, defence, biomedical, chemical processing, and manufacturing. The ITTC for Corrosion Prevention will signify an essential investment in Australia's human capital by developing professionals in



a career of the future. We will provide specific academic and industry training programs for PhD students, and post-doctoral research fellows through their placement in partner industry organisations. The ITTC will foster knowledge transfer from academia to industry and strategically deploy cutting-edge technologies.

ITTC scheme and benefits

The ITTC is jointly funded by the ARC, research organisations (including universities and government research organisations) and industry partners. ARC will contribute a minimum of **\$650,000 p.a.** to a maximum of **\$1 million p.a.** for **4 to 5 years.**

The ARC funds are combined with cash and in-kind contributions from research organisations and industry partners and primarily used to fund PhD programs and postdoctoral research fellows.

Industry funds will be partially used towards the placement of PhD candidates or postdoctoral research fellows in the partner organisation to pursue industrial training within the ITTC scheme.

The ITTC for Corrosion Prevention aims to attract funding to support up to **6 post-doctoral fellows** and **12 PhD students** to address issues associated with both internal and external corrosion processes across a range of industry sectors.

Benefits to industry partners

Benefits to industry partners include:

- develop new as well as radically transform current corrosion prevention and management programs through cutting-edge research and engineering.
- collaborate with Australia's most prestigious network of corrosion, materials, and computational science researchers.
- leverage R&D funds with ARC and academic institutions to advance long-term sustainable corrosion solutions.
- access innovative research insights and new technologies in corrosion and materials science.
- access to the state-of-the-art research facilities and expertise of Australia's corrosion research community, combined with shared knowledge from international institutions.
- develop of training programs in partnership with academic institutions. Help train tomorrow's skilled workforce by hosting scientists to work on specific industry projects.
- collaborate with researchers and other industry partners within the ITTC network, and access to training sessions and technical workshops.

Research themes

- Protective Coatings for various applications, including:
 - Cathodic Protection
 - Microbiologically Influenced Corrosion
 - Corrosion Under Insulation
- Materials performance (Environmental Cracking and Tribocorrosion)
- Concrete Corrosion
- Digital twins and Machine Learning to incorporate Industry 4.0 to Integrity Management.

Timeline

- **5 October 2020:** Industry partners to lodge an expression of interest.
- **26 October 2020:** Completion of the internal draft application.
- **11 November 2020:** ARC deadline for submission.
- **Quarter 3, 2021:** Anticipated announcement of funding outcomes from ARC.



How to join ITTC for Corrosion Prevention

Contact us to find out how you can participate and help us tailor a research program that will benefit your organisation.

We can come to you to present technical capabilities and opportunities in the proposed research themes, assess your corrosion issues and assist with selecting a suitable research scheme.

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