

Julia Race
Reader
Naval Architecture, Ocean And Marine Engineering
Postal address:
United Kingdom
Email: julia.race@strath.ac.uk
Phone: 01415485709



Personal Statement

Prior to starting my academic career, I worked in industry for over 20 years, latterly in the pipeline industry for 7 years as an integrity consultant for GE Oil and Gas. In this role, I was responsible for providing fitness-for-purpose, remaining life and corrosion assessments for onshore and offshore pipelines. I have also worked as a materials engineer in the petrochemical and power generation industries involved with the operation, maintenance and design of chemical and power plant.

I joined Newcastle University in 2005 as a lecturer in Pipeline Engineering, running an MSc in Pipeline Engineering and establishing an MSc Subsea Engineering and Management. I also began my main research into the pipeline and marine transport of carbon dioxide for carbon capture and storage (CCS). However, my other research interests include modelling external corrosion in pipelines and evaluating the effect of denting on pipeline integrity.

At the University of Strathclyde, which I joined in 2014, I am continuing my research interests in CCS transport. However, I have a wide range of research expertise in metallurgy, failure analysis, welding and corrosion in the power, petrochemicals and energy sectors.

Qualifications

Doctor of Philosophy, University of Cambridge
Bachelor of Engineering, University of Sheffield
... → 2003 Chartered Engineer, UK, CEng
... → 2003 Member of the Institute of Materials, Minerals and Mining, MIMMM

Research output

Delivering Prosperity: Industrial Decarbonisation and the Just Transition

Turner, K., Race, J., Alabi, O., Katris, A. & Swales, K., 11 Dec 2019, Glasgow: University of Strathclyde. 2 p.

Analytical and computational indoor shelter models for infiltration of carbon dioxide into buildings: comparison with experimental data

Lyons, C. J., Race, J. M., Adefila, K., Wetenhall, B., Aghajani, H., Aktas, B., Hopkins, H. F., Cleaver, P. & Barnett, J., 10 Oct 2019, In : International Journal of Greenhouse Gas Control . 102849.

The role of CCUS in industry clusters in delivering value to the political economy: a new multiplier metric for the quality of employment

Turner, K., Alabi, O., Race, J. & Katris, A., 13 Sep 2019, Glasgow: University of Strathclyde. 5 p.

Assessment of the applicability of failure frequency models for dense phase carbon dioxide pipelines

Lyons, C. J., Race, J. M., Wetenhall, B., Chang, E., Hopkins, H. F. & Barnett, J., 31 Aug 2019, In : International Journal of Greenhouse Gas Control . 87, p. 112-120 9 p.

The Role of CCS in Industry Clusters in Delivering Value to the Political Economy

Turner, K., Race, J., Katris, A. & Alabi, O., 4 Jul 2019, Glasgow: University of Strathclyde. 2 p.

Reframing the Value Case for CCUS: Evidence on the Economic Value Case for CCUS in Scotland and the UK (Technical Report)

Turner, K., Alabi, O., Low, R. & Race, J., 22 Mar 2019, Glasgow: University of Strathclyde. 37 p.

Reframing the Value Case for Carbon Capture and Storage

Turner, K., Alabi, O., Low, R. & Race, J., 22 Mar 2019, Glasgow: University of Strathclyde. 9 p.

Roundtable Event: The Potential Value of CCUS to the Political Economy, Edinburgh 28 November 2018

Turner, K., Chalmers, H., Chalmers-Deacon, K., Corradi, L., d'Elloy, M., de Vries, F., Holman, D., Holmes, N., James, A., Bevan, N., Kerr, S., Mallows, T., Parmiter, P., Race, J., Ramirex, A. R., Robertson, L., Sloss, L., Sweeney, G., Tucker, O., Vass, S. & 1 others Warren, L., 11 Jan 2019, Glasgow: University of Strathclyde. 26 p.

Making the Macroeconomic Case for Near Term Action on CCS in the UK? The Current State of Economy-wide Modelling Evidence

Turner, K., Race, J., Alabi, O. & Low, R., 28 Mar 2018, Glasgow: University of Strathclyde. 15 p.

On the potential for interim storage in dense phase CO₂ pipelines

Aghajani, H., Race, J. M., Wetenhall, B., Sanchez Fernández, E., Lucquiaud, M. & Chalmers, H., 2 Nov 2017, In : International Journal of Greenhouse Gas Control . 66, p. 276-287 12 p.

The main factors affecting heat transfer along dense phase CO₂ pipelines

Wetenhall, B., Race, J. M., Aghajani, H. & Barnett, J., 31 Aug 2017, In : International Journal of Greenhouse Gas Control . 63, p. 86-94 9 p.

Considerations in the development of flexible CCS networks

Wetenhall, B., Race, J., Aghajani, H., Sanchez Fernandez, E., Naylor, M., Lucquiaud, M. & Chalmers, H., 31 Jul 2017, In : Energy Procedia. 114, p. 6800-6812 13 p.

Shelter models for consequence and risk assessment of CO₂ pipelines

Race, J., Adefila, K., Wetenhall, B., Aghajani, H. & Aktas, B., 13 Jun 2017.

Making the macroeconomic case for CCS?

Turner, K. & Race, J., 11 May 2017.

Future CCS Technologies: European Zero Emission Technology and Innovation Platform

Network Technology – Future CCS Technologies Temporary Working Group, 12 Jan 2017, 126 p.

Making the macroeconomic case for CCS

Turner, K. & Race, J., 23 Nov 2016, Carbon Capture Journal, 54, p. 14-15 2 p.

Impacts of geological store uncertainties on the design and operation of flexible CCS offshore pipeline infrastructure

Sanchez Fernandez, E., Naylor, M., Lucquiaud, M., Wetenhall, B., Aghajani, H., Race, J. & Chalmers, H., 16 Jul 2016, In : International Journal of Greenhouse Gas Control . 52, p. 139-154 16 p.

Fatigue assessment of pipeline with plain dents under cyclic pressure loading using finite element method

Durowoju, M., Pu, Y., Benson, S. & Race, J., 17 Jun 2016, p. 1-10. 10 p.

Impact of CO₂ impurity on CO₂ compression, liquefaction and transportation

Race, J., Aghajani, H., Wetenhall, B., Benson, S. D., Chalmers, H., Ferrari, M-C. & Li, J., 30 Apr 2016, Cheltenham, UK. 1165 p.

Prediction of the consequences of a CO₂ pipeline release on building occupants

Lyons, C. J., Race, J. M., Hopkins, H. F. & Cleaver, P., 13 May 2015, *Hazards 25: Edinburgh International Conference Centre, Edinburgh; United Kingdom; 13 May 2015 through 15 May 2015*. Red Hook, Vol. 160. 11 p. (Institution of Chemical Engineers Symposium Series).

Impact of impurities on pipeline specification and hydraulics

Aghajani, H., Wetenhall, B., Race, J., Chalmers, H., Ferrari, M-C., Li, J., Singh, P., Davison, J. & Kemper, J., 27 Mar 2015, p. 1-22. 22 p.

The effect of CO₂ purity on the development of pipeline networks for carbon capture and storage schemes

Wetenhall, B., Race, J. M. & Downie, M. J., 1 Nov 2014, In : International Journal of Greenhouse Gas Control . 30, p. 197-211 15 p.

Impact of CO₂ impurity on CO₂ compression, liquefaction and transportation

Wetenhall, B., Aghajani, H., Chalmers, H., Benson, S. D., Ferrari, M-C., Li, J., Race, J. M., Singh, P. & Davison, J., 2014, In : Energy Procedia. 63, p. 2764-2778 15 p.

Internal stress-corrosion cracking in anthropogenic CO₂ pipelines: is it possible?

Sandana, D., Dale, M., Charles, E. A. & Race, J., Dec 2013, In : The Journal of Pipeline Engineering. 12, 4, p. 321-334 14 p.

Techno-economic modelling and analysis of CO₂ pipelines

Ghazi, N. & Race, J. M., 1 Jun 2013, In : The Journal of Pipeline Engineering. 12, 2, p. 83-92 10 p.

The effect of impurities on a simplified CCS network

Wetenhall, B., Race, J. & Downie, M. J., Apr 2013.

Transport of gaseous and dense carbon dioxide in pipelines: is there an internal stress corrosion cracking risk?

Sandana, D., Charles, E. A., Dale, M. & Race, J., 21 Mar 2013. 15 p.

Towards a CO₂ pipeline specification: defining tolerance limits for impurities

Race, J. M., Wetenhall, B., Seevam, P. N. & Downie, M. J., Sep 2012, In : The Journal of Pipeline Engineering. 11, 3, p. 173-190 18 p.

Transport of gaseous and dense phase carbon dioxide: is there an internal corrosion risk?

Sandana, D., Hadden, M., Race, J. & Charles, EA., Sep 2012, In : The Journal of Pipeline Engineering. 11, 3, p. 229-238 10 p.

Techno-economic modelling and analysis of CO₂ pipelines

Ghazi, N. & Race, J. M., 2012, p. 189-198. 10 p.

Comparing the effects of pipe diameter on flow capacity of CO₂ pipeline

Ikeh, L., Race, J. M. & Aminu, A. G., 14 Nov 2011, p. 822-827. 6 p.

Determination of the appropriate fracture mechanism for tensile armour wires using micromechanical model-based fracture mechanics

Adewole, K. K., Race, J. M., Bull, S. J. & (AES), A. E. S., 2011, p. 147-154. 8 p.

Effect of miniature channel shaped scratches on the tensile properties of flexible pipe tensile armour wires

Adewole, K. K., Race, J. M. & Bull, S. J., 2011, p. 155-162. 8 p.

UKOPA dent assessment algorithms: a strategy for prioritising pipeline dents

Race, J. M., Haswell, J. V., Owen, R., Dalus, B. & Division, I. P. T. I. P., 1 Oct 2010, p. 923-933. 11 p.

Development of a Global CO₂ Pipeline Infrastructure: Report 2010/13

Pershad, H., Harland, K., Stewart, A., Slater, S., Race, J., Hunt, P. & Zakkour, P., Aug 2010, 170 p.

13 - Infrastructure and pipeline technology for carbon dioxide (CO₂) transport

Seevam, P. N., Race, J. M. & Downie, M. J., 2010, *Developments and Innovation in Carbon Dioxide (Co₂) Capture and Storage Technology: Carbon Dioxide (Co₂) Capture, Transport and Industrial Applications*. Maroto-Valer, M. M. (ed.). Vol. 1. p. 408-434 27 p.

Capturing carbon dioxide: the feasibility of re-using existing pipeline infrastructure to transport anthropogenic CO2
Seevam, P., Race, J., Downie, M., Barnett, J. & Cooper, R., 2010, *Proceedings of the ASME International Pipeline Conference 2010*. New York, NY., Vol. 2. p. 129-142 14 p.

Management of corrosion of onshore pipelines

Race, J. M., 7 Dec 2009, *Shreir's Corrosion: Management and Control of Corrosion*. Richardson, T. J. A. (ed.). 4th ed. Amsterdam, Vol. 4. p. 3270-3306 37 p.

Investigating the relative severity of dents in pipelines based on magnetic flux leakage inspection data

Tindall, L. M., Race, J. M. & Dawson, J., 2009, p. 351-361. 11 p.

Transporting the next generation of CO2 for carbon capture and storage: The impact of impurities on supercritical CO2 pipelines

Seevam, P. N., Race, J. M., Downie, M. J. & Hopkins, P., 2009, p. 39-51. 13 p.

Reach in and reach out: the story of the MSc in pipeline engineering at Newcastle University

Whitehurst, F., Siedlok, F. & Race, J., 31 Dec 2008, In : *International Small Business Journal*. 26, 6, p. 709-733 24 p.

Integrity assessment of plain dents subject to fatigue loading

Race, J. M., 31 Jul 2008, Newcastle-upon-Tyne, UK. 43 p.

Challenges for offshore transport of anthropogenic carbon dioxide

Race, J. M., Seevam, P. N. & Downie, M. J., 1 Oct 2007, *Proceedings of the 26th International Conference on Offshore Mechanics and Arctic Engineering*. New York, NY., Vol. 3. p. 589-602 14 p.

Carbon dioxide pipelines for sequestration in the UK: an engineering gap analysis

Seevam, P. N., Race, J. M. & Downie, M. J., Sep 2007, In : *The Journal of Pipeline Engineering*. 6

Predicting corrosion rates for onshore oil and gas pipelines

Race, J. M., Stanley, L., Dawson, S. J. & Kariyawasam, S., 2007, p. 385-395. 11 p.

Technical challenges of CO2 pipeline transport for sequestration

Seevam, P. N., Race, J. & Downie, M. J., 2007.

Transport of CO2 for carbon capture and storage in the UK

Downie, M., Race, J. & Seevam, P., 2007, p. 600-607. 8 p.

Determining pipeline corrosion growth rates

Plummer, H. & Race, J., 2003, In : *Corrosion Management*. 52, p. 16-21 6 p.

Assessment of corrosion in low toughness pipe material

Race, J. & Peet, S., 30 Apr 2002, In : *NACE - International Corrosion Conference Series*. 11 p., 02088.

Assessment of corrosion in low toughness steel

Race, J. & Peet, S., 11 Apr 2002.

Pipeline corrosion management

Dawson, S. J., Race, J., Krishnamurthy, R. & Peet, S., Mar 2001.

Precipitation sequences during carburisation of Cr-Mo steel

Race, J. M. & Bhadeshia, H. K. D. H., 1 Oct 1992, In : *Materials Science and Technology*. 8, 10, p. 875-882 8 p.

Carbon diffusion across dissimilar steel welds

Race, J. & Bhadeshia, H. K. D. H., Jun 1992, *International Trends in Welding Science and Technology : International Conference Proceedings*. Materials Park, Ohio