

Headline: To quote the citation of the 2006 Institute of Physics Paterson Medal, “He is an acknowledged world leader in four fields”.

Summary (<http://tinyurl.com/zjvjkqg>): I am the founder and Chair of the Network for AntiMicrobial Resistance and Infection Prevention (NAMRIP - <http://tinyurl.com/h5f8k9b>). I have pioneered fundamental research, and then taken it through to products, including biomedical devices, new sonar and radar, & industrial ultrasonic devices. I have received 7 medals & 5 International Prizes from diverse bodies.

Born: 16-10-63 **Publications:** <http://tinyurl.com/gnr5ep7> **Email:** tgl@soton.ac.uk **Tel:** +44 23 80 592291.

Work: Institute of Sound & Vib. Research, Univ. of Southampton, Highfield, Southampton SO17 1BJ UK.

Medals and awards:

- **AWARDS:** • the 2014 ‘Product of the Year’ for StarStream™ (S-lab); • the Institute of Chemical Engineering 2012 Award for “Water Management and Supply” for StarStream™; • the 2011 Royal Society Brian Mercer Award for Innovation for StarStream™; • the 2008 ‘Medical & Healthcare’ award from ‘The Engineer’ for LithoCheck™; • the inaugural (2001) International Medwin Prize for Acoustical Oceanography from the Acoustical Society of America.
- **MEDALS:** • the 2017 Clifford Paterson Medal of the Royal Society • the 2014 Rayleigh Medal of the Institute of Acoustics; • the 2013 Helmholtz-Rayleigh Interdisciplinary Silver Medal of the Acoustical Society of America; • the 2009 R W B Stephens Medal of the Institute of Acoustics; • the 2006 Paterson Medal of the Institute of Physics; • the inaugural (2004) Early Career Medal and Award of the International Commission of Acoustics; • the 2002 Tyndall Medal of the Institute of Acoustics; • the 1994 A. B. Wood Medal of the Institute of Acoustics.
- **FELLOWSHIPS:** • Fellow of the Royal Society; • Fellow of the Royal Academy of Engineering; • Fellow of the Institute of Acoustics; • Fellow of the Institute of Physics; • Fellow of the Cambridge Philosophical Society; • Fellow of the Acoustical Society of America.

Education

Years	University	Degree
85-88	Cambridge	PhD (Cavendish Laboratory, University of Cambridge)
82-85	Cambridge	BA Hons (Natural Sciences): Double First Class Honours in Physics & Theoretical Physics (highest mark of the year for experimental project)

Mentoring: I supervised 25 PhD’s to completion (*Average duration: ~ 3½ years*); LECTURED undergrad and MSc since 1992 (example lecture at <http://tinyurl.com/ot5pffk>); devised and ran ECR training for 8 years.

Career

2016	Founder & Chair, Global-NAMRIP
2015	Founder & Chair, NAMRIP & HEFUA
2009	Associate Dean (Research), Faculty of Engineering & the Environment
2007	Deputy Head of ISVR
1999	Professor, Ultrasonics & Underwater Acoustics, Uni Soton

1997	Reader, ISVR, Uni Soton
1992	Lecturer, ISVR, Uni Soton
1991	Senior Research Fellow (Magdalene College, Cambridge Uni) & SERC Advanced Fellowship
1988	Research Fellow (Cambridge Uni) & SERC Postdoctoral Fellowship

Leadership highlights

I led the REF2014 bid that achieved first for power in any and all branches of engineering (<https://tinyurl.com/h7opaug>). From an initial £10k stake, in under 2 years I led NAMRIP to win £7M research funds that would not have otherwise occurred, plus over £15M of funds for collaborations of which NAMRIP was a key organization. NAMRIP formed the basis of 2 spinouts (by other PIs) plus >6 licences, 4 trademarks, 5 patents granted and 11 patents pending. In NAMRIP I funded over 30 new collaborations, led mentoring programmes that transitioned 12 Early Career Researchers into PIs, and devised Public Engagement and Public Policy programmes (<http://tinyurl.com/h5f8k9b>). In 2016 I globalized the network (<https://tinyurl.com/gm4t7bq>).

Public service includes • Founding Chairman, Global Network on Antimicrobial Resistance and Infection Prevention (Global-NAMRIP) <https://tinyurl.com/ycdkh92u> • Founding Chairman, Network on Antimicrobial Resistance and Infection Prevention (NAMRA; <http://tinyurl.com/h5f8k9b>); • Founding Chairman, UK Health Effects of Airborne Ultrasound (HEFUA, <http://tinyurl.com/zrud6nw>); • Government of the United Kingdom’s Working Group of the Advisory Committee on Dangerous Pathogens Transmissible Spongiform Encephalopathies Sub Group; • Scientific Expert Group of the International Commission on Non-Ionizing Radiation Protection; • Defence Scientific Advisory Council (DSAC), Ministry of Defence (MoD); • World Federation of Ultrasound in Medicine and Biology Safety Work Group; • Ministry of Defence Brains Trust, under MoD Science and Technology Rapid Assistance to Operations (STRATOS) programme; • Maritime Mine Countermeasures Workgroup, DSAC, MoD; • Scoping Group on Ultrasound and Infrasound

Safety, Health Protection Agency; • Work Group 22 of Accredited Standards Committee S1 of Acoustical Society of America; • Member, Panels 1 and 6 of Royal Academy of Engineering Membership Committees; • Stage 1 Reviewer, Postdoctoral Fellowships, Royal Academy of Engineering; Member, Royal Society Fellowship Sectional Committee 4; • Member of the Royal Society's Wolfson Research Merit Awards Selection Committee 4; • Member of the Royal Society's Newton Advanced Fellowship assessment panel; • Member, Ingenious Panel Royal Academy of Engineering; • Past Council member and Trustee, Institute of Acoustics; • numerous technical and administrative (e.g. research coordination) committees for ~5 professional and learned scientific organizations; • 18 times serving as organizer and Chair of a Conference (plus numerous occasion serving as a member of the organizing or scientific advisory committee for a conference); • Member, Editorial Board of the Proceedings of the Royal Society A; • Member, Sectional Committee 4 for Fellowship of the Royal Society.

Outreach Since giving the Opening invited lecture to the 1992 Women in Physics Conference (Cambridge UK), to talking to the public about AMR in June 2016 at the Cheltenham Science Festival (<http://tinyurl.com/zwwyq3r>), I conducted outreach, one online lectures (<http://tinyurl.com/ot5pffk>) having 2800 views. StarStream™ alone engendered public comments, for top national science TV shows in **Italy** (4898 Youtube hits, including 'Bellissimo video, Grazie'), **Germany** (271 Youtube hits - <http://tinyurl.com/jmm84yn>), and the **UK** (301 Youtube hits incl. 'She is right - that cleaning machine is magic!' - <http://tinyurl.com/jf2c6j2>). Videos were posted by the **Royal Society** (4825 Youtube hits, incl. 'such a great idea!' - <http://tinyurl.com/jatedbb>) and **Ultrawave Ltd.** websites (6306 Youtube hits - <http://tinyurl.com/zya7wpe>). I led NAMRIP's Public Engagement (<https://tinyurl.com/hczug24>) and Public Policy (<https://tinyurl.com/jgso9h6>) programmes.

Patents granted since 2015

Leighton T.G. et al. (2017) UK Patent (United Kingdom Patent Number GB2538276) from UK Patent Appl. GB1508167.2.
Leighton T.G. et al. (2017) Japanese Patent #6134138 from Application JP 2012-526053 Uni. Southampton.
Leighton T.G. et al. (2016) European Patent # EP 2470310 from Application 10748081.6
Leighton T.G. et al. (2016) German Patent # 602010029942-2 from Application 10748081.6
Leighton T.G. et al. (2016) Chinese Pat. # 2150243 from Application CN 201080045751.5 Uni. Southampton.
Leighton T.G. et al. (2015) Russian Pat. # 2565705 from Application RU 2012111316 Uni. Southampton.

International & national guidelines (a full list of ~400 publications is available at <http://tinyurl.com/gnr5ep7>)

Bryant G., et al. (2015) [Minimise transmission risk of CJD and vCJD in healthcare settings. Report on the Prevention of CJD and vCJD by Advisory Committee on Dangerous Pathogens' Transmission Spongiform Encephalopathy \(ACDP TSE\) Subgroup.](#) Published as part of the Creutzfeldt-Jakob disease (CJD): guidance, data and analysis reports by the UK Government Department of Health (22 October 2015). Crown Copyright 2015. <http://tinyurl.com/zrjxg8j>
Hannis S., et al. (2015) [Review of Offshore Monitoring for CCS Projects.](#) IEAGHG Technical Report 2015-02 (July 2015) Copyright 2016 IEAGHG. <http://tinyurl.com/judwf5h>
Barnett S., et al. (1998). *World Federation for Ultrasound In Medicine and Biology, Task Group Report for Safety Committee of the WFUMB: Conclusions and recommendations on thermal and non-thermal mechanisms for biological effects of ultrasound. Ultrasound in Medicine and Biology, 24, Supplement 1 (59 pages).* <http://tinyurl.com/hmfvncz8>

Journal papers since 2016 (a full list of ~400 publications is available at <http://tinyurl.com/gnr5ep7>)

Turangan, C.K., Ball, G.J., Jamaluddin, A.R. and Leighton, T.G. (2017) [Numerical studies of cavitation erosion on an elastic-plastic material caused by shock-induced bubble collapse.](#) *Proceedings of the Royal Society A*, **473**(2205), 20170315, 20 pages (doi: 10.1098/rspa.2017.0315) [used as cover image].
Hannis, S., Chadwick, A., Connelly, D., Blackford, J., Leighton, T., Jones, D., White, J., White, P.R., Wright, I., Widdicombe, S., Craig, J. and Dixon, T. (2017) [Review of offshore CO2 storage monitoring: Operational and research experiences of meeting regulatory and technical requirements.](#) *Energy Procedia* **114**, 5967-5980 (doi: 10.1016/j.egypro.2017.03.1732)
Dogan H., White P.R. and Leighton T.G. (2017) [Acoustic wave propagation in gassy marine sediments: The rheological and the elastic effects.](#) *J. Acoust. Soc. Am.*, **141**(3), 2277-2288 (doi: 10.1121/1.497892).
Leighton T.G. (2017) [Comment on 'Are some people suffering as a result of increasing mass exposure of the public to ultrasound in air?'](#) *Proc. Royal Soc. A*, **473**(2199), 20160828 (13 pages) (doi: 10.1098/rspa.2016.0828).
Leighton T.G. (2017) [The acoustic bubble: Ocean, cetacean and extraterrestrial acoustics, and cold water cleaning.](#) *Journal of Physics: Conf. Series*, **797** (2017) 012001 (23 pages) (doi:10.1088/1742-6596/797/1/012001).
Salta M., Goodes L., Maas B., Dennington S., Secker T. and Leighton T.G. (2016) [Bubbles vs. biofilms: A novel method for the removal of marine biofilms attached on antifouling coatings using an ultrasonically activated water stream.](#) *Surf. Topogr.: Metrol. Prop.* **4**(3), 034009 (doi: 10.1088/2051-672X/4/3/034009).
Goodes, L.R., Harvey, T.J., Symonds, N. and Leighton, T. G. (2016) [A comparison of ultrasonically activated water stream and ultrasonic bath immersion cleaning of railhead leaf-film contaminant.](#) *Surf. Topogr.: Metrol. Prop.* **4**(3), 034003 (doi: 10.1088/2051-672X/4/3/034003).
Ainslie, M.A and Leighton T.G. (2016) [Sonar equations for planetary exploration.](#) *J. Acoust. Soc. Am.*, **140**(2), 1400-1419 (doi: 10.1121/1.4960786).
Leighton T.G., Banda, N., Berges, B., Joseph P.F. and White, P.R. (2016) [Extraterrestrial sound for planetaria: a pedagogical study.](#) *J. Acoust. Soc. Am.* **140**(2), 1469-1480 (doi: 10.1121/1.4960785).
Mantouka A., Dogan, H., White P.R. and Leighton T.G. (2016) [Modelling acoustic scattering, sound speed, and attenuation in gassy soft marine sediments.](#) *J. Acoust. Soc. Am.*, **140**(1), 274-282 (doi: 10.1121/1.4954753).
Leighton, T. G. (2016) [Are some people suffering as a result of increasing mass exposure of the public to ultrasound in air?](#) *Proc. Roy. Soc. A*, **472**(2185), 20150624 (57 pages) (doi:10.1098/rspa.2015.0624).
Solan, M., Hauton, C., Godbold, J.A., Wood, C., Leighton, T.G. and White, P. (2016) [Anthropogenic sources of underwater sound can modify how sediment-dwelling invertebrates mediate ecosystems properties.](#) *Scientific Reports (Nature Publishing Group)*, **6**, 20540 (doi:10.1038/srep20540).
Birkin P.R., Offin D.G. and Leighton T.G. (2016) [An activated fluid stream - new techniques for cold water cleaning.](#) *Ultrasonics Sonochemistry* **29**, 612-618 (doi:10.1016/j.ultsonch.2015.10.001).