Using bubbles to transform medicine, develop ultrasonic cleaning and learn more about whales and dolphins

Pioneering research into bubble acoustics is developing exciting applications in several fields. Professor Tim Leighton and colleagues in the Institute of Sound and Vibration Research (ISVR) are discovering new ways of understanding the oceans, delivering drugs and medical procedures and even making cleaning systems work more efficiently.

Research Challenge

ISVR at the University of Southampton has worked on innovative research problems for 50 years. While its successful research continues into how sound and vibration affects human beings, transport and industry, acoustical engineering is breaking new ground. Professor Leighton's innovative work is inspiring researchers around the world.

Our solution

Many of the world's problems need new solutions. Examining how bubbles work and exploiting their characteristics is a pioneering area of research that could transform healthcare and science. Professor Leighton's team works with university, NHS and industrial collaborators to turn the theories of bubble acoustics into practice. His initial academic publication predicting its impact is popular with fellow researchers and has attracted 2,000 citations so far.

Our impact

Bubbles have the potential to bring immense benefits to mankind. Research by Professor Leighton shows how they can be applied in exciting developments in medicine through improved ultrasonic diagnostic and treatment tools that are already in use in the NHS. Adding bubbles to cleaning systems makes jets more efficient and reduces the amount of water needed. There are countless applications of bubble technology in science and engineering ranging from discovering unexploded mines in bubbly seawater to tracking underground or undersea leaks. He is in demand by journalists and broadcasters keen to understand more about the impact of bubble acoustics.