

# PURSUING ANSWERS, CREATING IMPACT

**D**r. Tan Wui Siew is a materials scientist by day, but on her days off, you might very well run into her working at the potter's wheel. Or she could be belting out tunes in a karaoke session, traversing the country on a hike, or jazzing things up on the dance floor with new lindy hop and swing moves.

The self-confessed workaholic may spend most of her time in the lab, but to her, working hard and playing hard are two sides of a coin. "The more I put into my work, the more I enjoy my leisure time. Enjoying life refreshes my mind and enables me to be creative and productive at work. I cannot imagine a full life without motivating and fulfilling hard work, peppered with time spent with family, friends, learning and the pursuit of random adventures."

Curiosity is her trademark, and it has brought her to explore many a thing in life. She muses, "Had I not become a scientist, I might have become an entrepreneur, medical doctor or social worker."

Yet among all her passions, it was science that she chose. "Science was my first love in school," Wui Siew confessed. "My curiosity drove me to ask many questions as a student. Stubborn refusal to accept answers such as 'That's all we know' or 'That's all we can do' led me to a path in science and technology."

**"The excitement of discovery and the opportunity to solve problems that impact human lives motivate me in my scientific pursuits."**



**Dr. Tan Wui Siew**  
Scientist, Institute of Materials  
Research and Engineering



## DOGGEDNESS IN ACTION

Today, Wui Siew applies the same doggedness to her research. "Learning, observing, analysing, communicating and failing, failing a lot – that is what my work involves," says Wui Siew. "Failing is a large part of research and experimentation, and inevitable when one tries to do things no one else has succeeded in before."

At A\*STAR, Wui Siew leads a team to understand and solve complex multidisciplinary problems involving how surfaces interact with water and oil, food or body fluids. The potential impact of their work is far-reaching. For instance, surfaces can be engineered to resist fungal and bacterial growth, to encourage integration of medical devices into human bodies, to prevent infection, to increase diagnostic accuracy – the list goes on. Their research can enable the development of safer, cost-effective technologies in a wide range of fields, from medical devices to household products.

To find the right answers, or even more importantly, to ask the right questions, Wui Siew and her team scour scientific literature and engage with both academia and industry. From there, the team identifies challenges that remain to be solved, and areas where new knowledge is needed for progress. "Continual education and dialogue ensure we remain relevant in our research. Furthermore, effective networks in the scientific community enable us to set up collaborations with other scientists to carry out multidisciplinary research aimed at building new knowledge and technological capability. This way, scientific research runs in full circle, from learning, ideation, experimentation, analysing data to understand new science, development of functional design and innovation," Wui Siew concludes.

## MAKING THE MAXIMAL IMPACT

Pursuing answers, however, is not just a rigorous intellectual exercise for Wui Siew. It is as much about making a difference in society.

Speaking of her vision, Wui Siew shares, "In this life, I hope to create the maximal positive impact on as many people as I can. Doing things for the right reasons is important to me. For my work, I hope that it will eventually impact Singapore's society in two ways – first, through scientific innovation, and second, through changing the way science is funded and perceived through outreach and communication."

To Wui Siew, Singapore is a fast-paced country accustomed to quick changes and results. However, scientific endeavours often require long-term incubation and nurturing. "Science is like a child, and its maturity cannot be rushed. To change that mindset, we need to have constant dialogue among all the stakeholders, including scientists, legislators and the public," opines Wui Siew.

With Science and Technology playing an increasingly important role in Singapore's socio-economic growth, research agencies such as A\*STAR will have even bigger roles to assume. "A\*STAR is one of the agencies with the capability to significantly influence our research ecosystem," says Wui Siew. "I believe that we can create greater impact in time to come, by implementing unconventional research strategies that will result in larger coordinated efforts. I dream of the day we can say *'This is what we did in A\*STAR that has enabled us to uniquely take first place in the world.'*"