



“I mainly work on microbial resistance, trying to develop a rapid test for the quick detection of whether the bacteria that the patient is infected with is resistant or not. I also work with viruses; and I worked with Covid,” she says.

Now a leader in her field of spectroscopy and molecular physics, her specialty at the Monash University Centre for Biospectroscopy is infectious diseases.

Occasionally, she branches out to work on other projects that require certain kinds of nanoscale information, such as investigations into viruses and vector-borne diseases such as malaria. She has a side project collaborating on understanding more on why white

blood cells become active and provide an immune response.

She wants to continue with her work on diseases, she says, focusing on the detection of drug resistance.

“In my personal opinion, that’s still one of the most pressing issues, specifically when it comes to bacteria, because they have a tendency to develop resistance much quicker than we actually develop new drugs,” she says.

“The funding for the development of new drugs is going down because it’s not worth it. There are very gruesome predictions that in 50 years we might go back to the pre-penicillin era and the risks of infection and death related to surgery will increase significantly.”

Sian Powell

Acoustics & Sound

Field leader: Xiaojun Qiu, UTS

Lead institution: Macquarie

Algebra

Field leader: Aidan Sims, Uni of Wollongong

Lead institution: Uni of Melb

Astronomy & Astrophysics

Field leader: Richard McDermid, Macquarie

Lead institution: ANU

Computational Mathematics

Field leader: Fawang Liu, QUT

Lead institution: UNSW

Condensed Matter Physics & Semiconductors

Field leader: Robert Ward, ANU

Lead institution: ANU

Discrete Mathematics

Field leader: David Wood, Monash

Lead institution: Monash

Electromagnetism

Field leader: Yingjie Jay Guo, UTS

Lead institution: UTS

Fluid Mechanics

Field leader: Ivan Marusic, Uni of Melb

Lead institution: Uni of Melb

Geometry

Field leader: Xuan Duong, Macquarie

Lead institution: Macquarie

Geophysics

Field leader: Dietmar Müller, Uni of Sydney

Lead institution: ANU

High Energy & Nuclear Physics

Field leader: Robert Ward, ANU

Lead institution: Uni of Sydney

Mathematical Analysis

Field leader: Fedor Sukochev, UNSW

Lead institution: Curtin

Mathematical Optimisation

Field leader: Fred Roosta, UQ

Lead institution: Curtin

Mathematical Physics

Field leader: Dominic Williamson, Uni of Sydney

Lead institution: Uni of Sydney

Nonlinear Science

Field leader: Tonghua Zhang, Swinburne

Lead institution: Swinburne

Optics & Photonics

Field leader: Yuri Kivshar, ANU

Lead institution: ANU

Physics & Mathematics (general)

Field leader: Tony Murphy, CSIRO

Lead institution: Monash

Probability & Statistics with Applications

Field leader: Daniel Simpson, Monash

Lead institution: Monash

Pure & Applied Mathematics

Field leader: David Wood, Monash

Lead institution: Curtin

Spectroscopy & Molecular Physics

Field leader: Kamila Kochan, Monash

Lead institution: UQ

Thermal Sciences

Field leader: Jiyuan Tu, RMIT

Lead institution: Uni of Adelaide