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# Examining spider silk properties with SAXS/WAXS for biomimetic applications

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With toughness greater than Kevlar®, spider dragline silk is nature's greatest performing fibre. Accordingly, there is immense interest in generating new synthetic fibres that mimic its mechanical performance. Biomimetics is a growing new field that looks to nature for inspiration to synthesize new high performance materials and processes. Nonetheless, there is currently little cross disciplinary engagement between biologists and engineers, meaning most biomimetic programs are making slow progress. I have expanded my spider silk research program, in which I have investigated the ecological and evolutionary basis for spider dragline silk property variability, probing the nanostructural basis for silk mechanical property variability using SAXS/WAXS at Australia Synchrotron and mechanical performance testing techniques. I am now working with engineers and designers to develop fibre spinning technologies to produce synthetics for incorporation into a range of new practical smart materials and adhesives.

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