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Development and culture of extremophiles using nanofibre scaffolds.

Extremophiles favour extremely special environments, such as high temperature, low pH levels and organic solvents. They have a different biological chemistry from common bacteria, such as a heat-resistant enzyme and special metabolism. They are not only biological concerns for research, but also are expected to be applied as environmental cleansing agents and to industrial processes.

This research developed various polymer nanofibres for extremophiles that enabled to culture and breed them on nanofibre scaffolds. Application to environmental materials and industrial usage could be achievable. In addition, basic knowledge has been increased on the relationship between the fibre properties, fibre thickness and morphologies. The successful bacterial adhesion and growth, *see figure 1*, creates a new research area for the control of bacterial behaviours with various material surfaces.

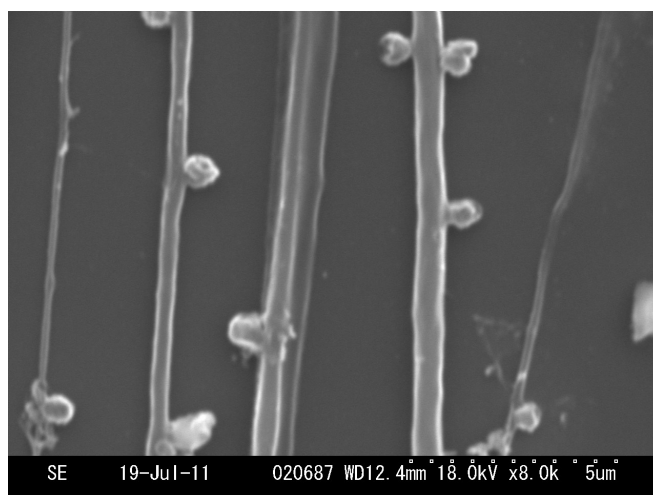


Figure 1: shows individual cell attachment to nanofibres

I was honoured to present my work to The Society of Biotechnology, Japan, at Nagoya University. My trip to Kanagawa Academy of Science and Technology to visit the Photocatalyst Museum was a highlight to my Japanese Fellowship. I was unexpectedly greeted by Taketoshi Murakami, the director of museum. He guided me through the exhibitions and made several demonstrations of Professor Fujishima's pioneering work. I also spent an enjoyable day at the Rembrandt Exhibition at Nagoya City Art Museum and made several drawings of Nagoya Castle on original Japanese paper. At Obama History Museum, I was impressed with the relevance of early Japanese pottery at a Lecture by Peter Jordan from Aberdeen University. I also purchased several chopsticks from this renowned region of Wakasa Province, Fukui Prefecture.

Japanese language training at the orientation was very useful. The poster presentation was a great success, *see figure 2*. Home-stay was a wonderful experience with a marvellous, and generous couple. I visited several local Temples and the remains of Fukui Castle, at Fukui Art Museum

(designed by Kisho Kurokawa) the work of Hiroatsu Takata, a sculptor who spent his youth in Fukui, was enjoyed; I found H. Kannide butterflies artwork colourful and interesting. I Went to a Tea Ceremony Museum and have enjoyed reading 'The Book of Tea', by Tenshin Okakura during my stay (statue in Fukui). I found captivating the Taro Kusakabe and William Elliot Griffis story (statue in Fukui) and enjoyed Fukui City History Museum. Visiting Eiheji Temple, in the mountains, one of Japan's holiest temples, was very calming and beautiful. Mikuni on the Echizen coast, gave me fascinating views of the special rock formations. Tojimbo features magnificent pillar-shaped rocks created by sea erosion. Extending for about 1 km, it commands an impressive view, standing against the raging waves of the Sea of Japan. Tojinbo tower allowed me to observe this special place and also by boat trip.

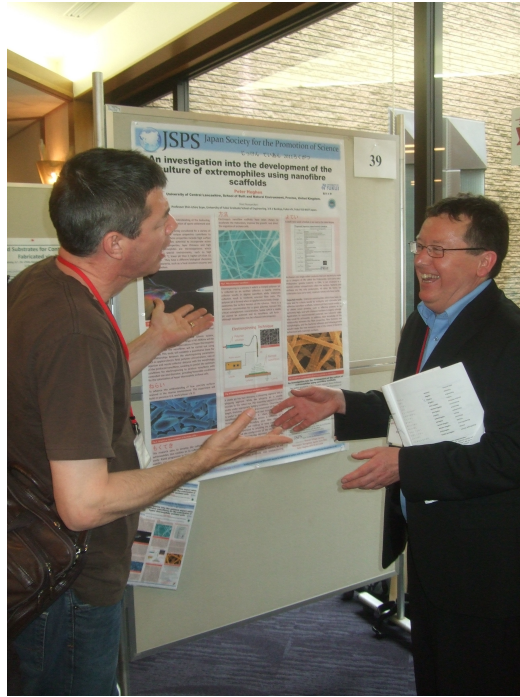


Figure 2: Poster presentation at Shonan Village Centre

My advise to future JSPS Fellows is don't forget a mains UK adaptor, take all necessary files with you, as your host university network may not allow you to remote access your UK university. Be careful in the high temperatures and enjoy every minute.

My time at Fukui University under the supervision of Professor Shin-ichiro has been memorable and of great value to my PhD studies.