the existing relationships between the partners and will be a springboard for further collaboration into the future." He also said that the original early-career fellows are returning to Scotland and already engaging with the local industry in new and exciting ways.

Scotland has been active in photonics research and the photonics industry for many years. The sector employs roughly 7,000 people in defense applications, medical diagnostics, and other laser-based industries. Although universities and companies have a history of working together in Scotland, SU2P established an organized process for doing so that aims to capture the whole range of disciplines that benefit from photonics research.

Universities and large companies were quick to sign on to SU2P because of the mutual benefits—companies have a direct line to potential employees and their training program, while universities have a direct line to entrepreneurial expertise and industry needs. The program aims to mirror the successful relationship between the Silicon Valley photonics industry and the Stanford Photonics Research Center within the Scotland environment, said Ross, as well as to enable the sites to tap into each other's resources and range of skills.

In some sense SU2P is a prototype, said Baer, who envisions an international photonics network of entrepreneurs and researchers that highlights research synergies and areas with promising commercial applications. Talks about such an effort have already begun with groups from Germany, Switzerland, Japan, and China.

SU2P is now in its second of three years of funding from the Research Councils UK Science Bridges Award, the Scottish Funding Council, and the Scottish Enterprise. Partnering institutions include the Universities of Strathdyde, St Andrews, Glasgow, and Heriot-Watt in Scotland and Stanford University and California Institute of Technology in the United States. Current industry partners include Coherent, Inc.; mLED; M Squared Lasers; Optos; SELEX Galileo; and Thales UK.

For more information on SU2P programs and opportunities, visit www.su2p.com.

Kendra Redmond

South Africa carves new growth paths for emerging researchers

Initiated in 2001, the Thuthuka Programs are the "cog in the wheel" that drives the South African National Research Foundation's (NRF) human capital development strategy. It is a key strategy designed to effectively address historical imbalances that still characterize the research landscape. The program architecture indicates deliberate interventions to affirm designated groups such as women, black, and disabled researchers. As the global environment continues to change, South Africa as a nation is faced with the challenge of remaining relevant and competitive for the future, according to NRF.

Having its genesis in 2001, the program was initially conceived to develop research capacities at historically disadvantaged institutions. "Thuthuka will continue to reinvent itself as it responds to material conditions on the ground. It cannot be business as usual and yesterday's solutions may not be the most appropriate course of action to contemporary challenges," said Claire Botha, Thuthuka Program director.

Vice President and Managing Director of Research and Innovation Support and Advancement Gansen Pillay said, "As a country we need to embark upon a journey of building a strong knowledge economy across all sectors by providing our researchers the opportunity to improve their research capacities." To date, the program's total research support investment approaches R200 million, consisting of 1058 grants awarded to 698 women and 594 black researchers. Of this, 620 grant holders have completed or are enrolled in PhD programs, directly contributing to Minister of Science and Technology Naledi Pandor's push for emerging researchers to study for higher degrees.

Additionally, 3,545 students benefited from participating in various research projects funded by the program and gaining from the supervision and mentorship of experienced researchers. According to Pandor, "Emerging researchers need to be encouraged to study for higher degrees. We are short of researchers with PhDs in our universities. Our poorer universities have learned that if they are to compete for research contracts they have to upgrade the degree qualifications of their staff. And some of our poorer universities have been extremely successful in doing this."

Echoing the same sentiment, Botha said that providing the necessary value-added support initiatives for emerging researchers will result and contribute to creating a world-class platform from which the NRF can continue to attract, train, and retain high-quality human resources who can produce cutting-edge research. Although the primary aim of the Thuthuka Program is to "promote professional development of researchers from designated groups" which have been historically disadvantaged, Botha and her team are committed to building the pillars of world-class research within a transformative environment which is sustainable. □

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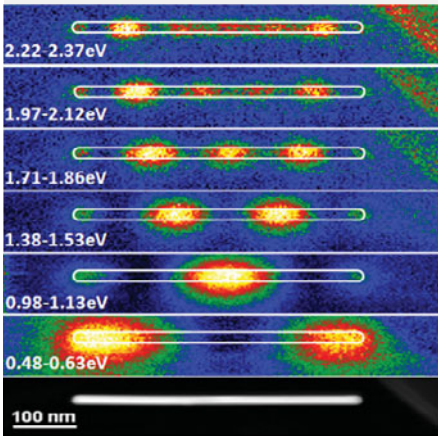
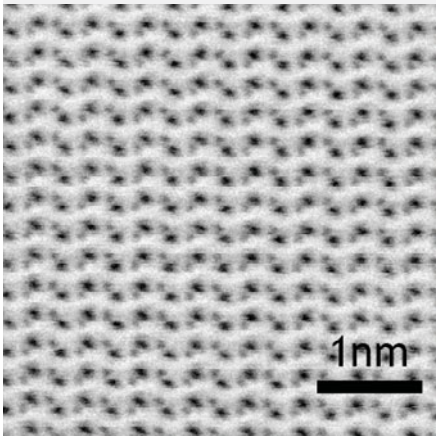


STEM/EELS map of low energy loss region of Ag nano-antenna using a monochromator. The relationship between the spatial and energy distribution is measured down to 0.55 eV.

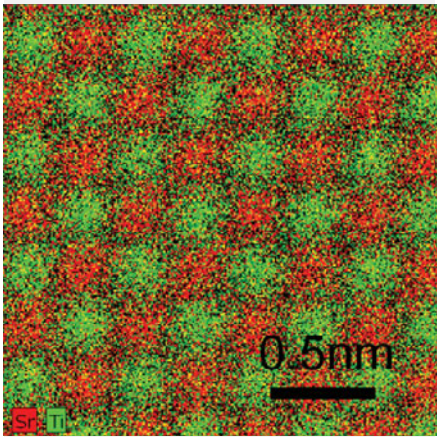
Courtesy of D. Rossouw, M. Couillard, J. Vickery, E. Kumacheva, G.A. Botton. Also in NanoLetters, 29 March 2011, dx.doi.org/10.1021/nl200634w

Atomic imaging of light elements



Angular brightfield STEM imaging (ABF) on GaN in [11-20] projection. The Ga and N dumbbell distance can be resolved atomically (raw data).

Atomic chemical mapping by EDX



Composite strontium and Titanium image extracted from the Sr-L and Ti-K EDS signal 256 x 256 pixels, 10 ms dwell time/pixel (raw data).

Sample courtesy of C. Jia, The Ernst-Ruska Centre for Microscopy and Spectroscopy with Electrons, Germany

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