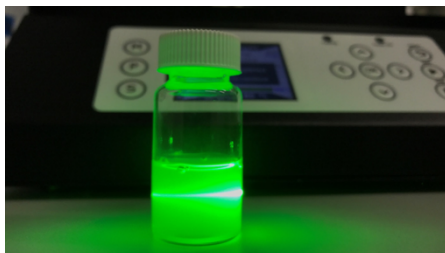


ASX announcement

SOR Backs CSIRO Code and Flexible Memory Ink Program

22 November 2018: Strategic Elements (ASX:SOR) is pleased to report an agreement has been signed with the University of New South Wales to optimise a flexible, transparent Nanocube Memory Ink and showcase the technology through demonstrator applications.

The agreement was facilitated by a recent breakthrough at the CSIRO laboratories in Melbourne where device engineers greatly enhanced the rate of measurement of Nanocube Ink memory cells by developing semi-autonomous testing code. This is expected to significantly enhance the ability for UNSW to optimise the ink during the program.



The Nanocube Memory Ink is an advanced nanotechnology material under development to be printed or coated onto non-silicon transparent or flexible surfaces (e.g. glass, plastic) to store/retrieve data.

The technology is held by 100% owned Australian Advanced Materials Pty Ltd (the Company).

UNSW Development

The UNSW development program will be led by Associate Professor Dr Dewei Chu, co-inventor of the Nanocube Memory Ink, and includes key researchers from within the UNSW School of Material Science and Engineering.

UNSW will also consult with other members of the Nanocube Ink development team that includes the Nanomaterials and Devices Team of CSIRO Manufacturing based in Melbourne and VTT Technical Research Centre of Finland Ltd (world leader working with some of the largest global companies in the sector).

The specific aim of the UNSW agreement is to further optimise the Nanocube Memory Ink **specifically for flexible and transparent materials** and develop demonstrator applications utilising the optimised flexible memory ink system.

UNSW will begin by assessing potential demonstrator applications in the area of multi-functional sensors and/or memory arrays.

- Multi-functional **capacitive sensors** can detect the type and strength of external stimuli including curvature, pressure, strain, and touch with clear distinction.
- Demand for different forms of memory storage is being driven by IoT, edge computing and Embedded Intelligence. Instead of sending data to the cloud, there will be a requirement for **local data storage on flexible** sensors, tags, wearables and high value consumer packaging.

The initial demonstrator application will be progressed after the current joint CSIRO and Nanocube Memory Ink Project is completed. This particular \$100,000 project is supported by a Federal Government financial grant. Final results of the CSIRO work are expected in February, 2019, with progress updates during that time as appropriate.

CSIRO Development

With the objective to speed up the development and testing of Nanocube RRAM devices, CSIRO device engineers have greatly enhanced the rate of device measurement by using semi-autonomous testing code.

Conventional measurement techniques are typically suited to transistor components and other bespoke electrical devices. Consequently, testing of RRAM prototypes has been time consuming and to date reduced overall program output. CSIRO engineers have improved upon this approach significantly by introducing semi-autonomous code that more accurately reflects the pulse switching nature of RRAM memory in the Memory Ink.

Due to the revolutionary nature of the Nanocube Memory Ink devices, accurately testing fabricated devices is one of the most critical steps in their development. It has been recognised in the academic literature that RRAM devices require specific parameters and configurations for testing, and that characterisation of device performance suffers if testing is not undertaken accurately.

The Company believes that the enhanced testing regime will lead to increased speed, accuracy and reliability of testing results, boosting overall program efficiency.

Market Background

IDTechEx predicts the total market size for Printed Electronics applications to grow from \$29 billion in 2018 to \$74 billion in 2027. OLED displays and sensors are the two largest component contributors which are set to grow significant over the coming years.

PrintoCent

Advanced Materials Pty Ltd is proud to have been invited to be a member of PrintoCent, a select consortium of approx. 50 global companies operating out of a specialised facility in Finland that contains the world's first pilot factory for printed electronics. The facility contains the worlds most advanced industrialisation capabilities for printed electronics. Large global companies involved in PrintoCent have included BASF, Nokia, Corning, Merck, Toyo Ink, Bosch, Orion, MuRata, AsahiKasei.

About Strategic Elements Ltd

*Strategic Elements shares are listed on the Australian Stock Exchange under the code "SOR". SOR focuses on backing innovation in the technology and resource sectors. The Company is registered under the Pooled Development Program Run by the Australian Federal Government to encourage investment into SME's. To assist Pooled Development Fund's to raise capital, the Federal Government enables most shareholders in a Pooled Development Fund to **make capital gains and receive dividends tax-free.** In return the Company must follow numerous regulations such as backing only Australian SME's.*

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