

# An oasis of learning

The Middle East is beginning to embrace research in photonics, particularly that related to photovoltaics.

Although photonics is a well-established field of research in many countries around the world, there are still some regions that are only now becoming active in this area. A good example is arabic countries in the Middle East, where the recent opening of new universities and research institutes dedicated to science and technology is allowing photonics to gain prominence in these countries for the first time. Both the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia and the Masdar Institute of Science and Technology in the United Arab Emirates have recently initiated photonics research programmes, and have already begun recruiting experts from overseas.

One country in the region already with a strong track-record in photonics is Israel, which boasts world-class research facilities such as Technion and the Weizmann Institute. Israel is also home to firms such as Ophir Optronics, a well-established manufacturer of optical test and measurement equipment.

KAUST officially opened in September 2009, following two years of construction. Located 80 km north of Jeddah, the second largest city in Saudi Arabia, the university boasts a large campus lined with 11,000 palm trees — a veritable oasis of learning in the desert.

KAUST was established by King Abdullah bin Abdulaziz Al Saud to create a “House of Wisdom” in Saudi Arabia, and the King



KAUST

has grand ambitions for its future. “It is my desire that this new University becomes one of the world’s great institutions of research; that it educates and trains future generations of scientists, engineers and technologists; and that it fosters, on the basis of merit and excellence, collaboration and co-operation, with other great research universities and the private sector,” proclaims the King. “The University shall have all the resources that it needs to pursue these goals. A perpetual waqf (endowment) is being established and shall be managed for the University’s benefit by an independent board of trustees.”

Photonics looks set to benefit from the initiative, with several experts in the field recently joining KAUST’s electrical engineering faculty to begin photonics-related research programmes. In 2010, Boon Ooi relocated from Lehigh University in Pennsylvania, USA, and is now setting up a semiconductor optoelectronics research programme for developing quantum dash and quantum dot lasers. Ghassan Jabbour,

previously at the University of Arizona in the USA and an active member of the organic photovoltaics community, is now director of the KAUST Solar and Photovoltaics Engineering Research Center. Andrea Fratallocchi, from the Roma Tre University in Italy, has also joined KAUST to conduct fundamental research on light-matter interactions.

It’s a similar story at the Masdar Institute of Science and Technology in Abu Dhabi, albeit on a smaller scale. Also opened in September 2009, the Masdar Institute conducts its research in partnership with the Massachusetts Institute of Technology in the USA. It is especially active in the field of photovoltaics, with programmes underway to develop high-efficiency thin-film solar cells and hybrid solar thermal and photovoltaic energy generation systems. It is also beginning research in other areas of photonics, such as silicon photonics.

Both KAUST and the Masdar Institute have mustered strong industry support, including from Boeing, Rolls Royce, IBM, Siemens, Schlumberger, Shell and Sumitomo Chemical. Both also have a strong focus on sustainability and energy generation, which are considered to be important enabling capabilities for the region. It will be interesting to see how photonics research in the Middle East evolves and matures over the coming years, but we can certainly expect to hear many more exciting reports from this region. □

## New online content

2011 sees the launch of our new Application Notes service.

Two new additions have recently been made to the *Nature Photonics* website. The first is a supplementary report describing the Nature Photonics Technology Conference on photovoltaics, which took place in October 2010 in Tokyo, Japan. The report, which can also be found on the conference website ([www.natureasia.com/en/events/photovoltaics](http://www.natureasia.com/en/events/photovoltaics)), provides a summary of the speakers’ presentations on various photovoltaic technologies, a round-up of the co-located exhibition and a series of

interviews with experts in the field. All of the speakers’ presentation slides will also be made available on the website. The second addition is the launch of our Application Notes service. Designed to allow vendors of photonics-related equipment to communicate effectively with our readership, Application Notes are short technical articles written by companies describing their latest commercial product, technology or technique in the field of photonics. The aim is to amass a

library of application-oriented material that we believe will be of interest to our readers and will complement the primary research papers we publish. Please note that because Application Notes are formally treated as advertising material they are not peer-reviewed and *Nature Photonics* does not endorse the views or claims expressed by the respective companies. Please visit the Applications Notes page on our website to learn more ([www.nature.com/nphoton/appnotes](http://www.nature.com/nphoton/appnotes)). □