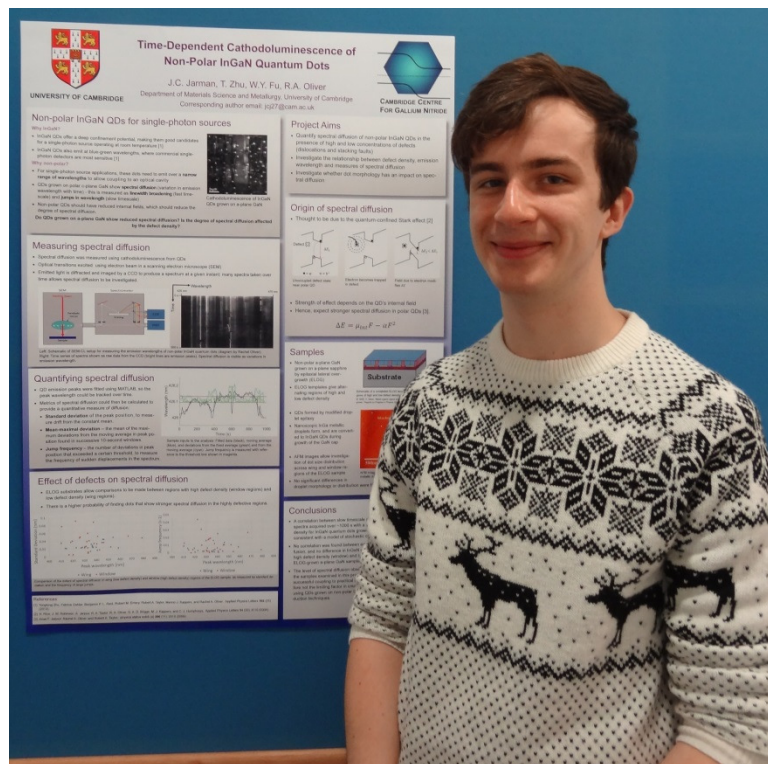


Mr John Jarman



John presenting his work on InGaN quantum dots at the UKNC conference.

"I enjoyed my fourth-year undergraduate project in the GaN group - and I was lucky enough to be able to stay on to study for a PhD."

How did you join the Cambridge Centre for Gallium Nitride?

I worked in the group as a fourth-year undergraduate at Cambridge, working on a project to investigate the instability in light emission from some nanostructures called quantum dots. I enjoyed the project - and I was lucky enough to be able to stay on to study for a PhD.

What do you like best about working in the group?

I spend most of my time now working out how to make photonic structures, such as pillars a thousandth of a millimetre wide, to contain the quantum dots I looked at in my fourth-year project and turn them into functioning quantum light sources. To do this, I've had to learn how to use a lot of equipment and a large number of techniques in the University's cleanrooms, and it's been really interesting to see some of what goes into making the electronic devices we rely on every day. I also enjoy the practical side - it's very rewarding to see one of your own hand-made LEDs

light up! My favourite aspect, though, is being given the freedom to come up with my own process and try new things. Using a novel material like non-polar GaN to make structures that nobody else has tried making before is a bit daunting – but getting to try a process and see what happens is very exciting.

Where do you see nitrides in future?

I think we'll be seeing them everywhere – the scientific advances in the materials science of GaN have made LED lighting a huge success story already, with more improvements in price and performance to come; current work on GaN for power electronics means that we might start seeing these materials involved in next-generation mobile transmitters, electric cars and electricity networks; and the potential applications for quantum light sources might mean that III-nitrides start to pervade secure communications and computing, too.



John working on our LED probe station, testing the device performance of our samples.

(Photo credit: Mr. Steve Penney)

Background:

John with a processed 6-inch GaN-on-Si LED wafer.

(Photo credit: Mr. Steve Penney)

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