



— ATHANASSIOS KALIUDIS

“We’re keeping our quantum trick secret!”

Michael Förtsch from Q.ANT insists that quantum technology will define the 21st century. His company is already getting the ball rolling.

Mr Förtsch, when will I be able to write WhatsApp messages using thought waves?

I would say that’s still some way off! But the good news is that we’ve already taken the first steps.

By that you mean your light sources for quantum technology?

Exactly. They’re set to be a real game changer.

In what sense?

In the future, we will be able to control physical quanta, such as photons, to a degree that was previously impossible. That’s essential for making any kind of beneficial use of quantum phenomena.

Let’s start at the beginning: what is quantum technology?

Quanta are everywhere, but the way they behave is something the human mind struggles to grasp. For example, in quantum mechanics it’s possible for something to exist simultaneously in two mutually exclusive states or occupy two different positions at the same time. I know that sounds ridiculously confusing! It’s best to simply accept how tough that is to imagine and focus on the possibilities it offers. Quantum technology can help us make use of the kind of quantum phenomena that we are simply not conscious of in our daily lives. Of course, applications based on quantum technology are not really anything new. Just think of semiconductor-based circuits in microprocessors, for example, or indeed lasers. But right now we’re crossing the threshold of 21st-century quantum technology.

What does that mean exactly?

It all comes down to control – our ability to control individual quanta. They carry specific information encoded within them, for example on their intrinsic angular momentum, or ‘spin’. In order to read this information and use it for calculations and other purposes, we have to make it visible, in other words amplify it to some degree. To do that, we use photons. But not just any old photons! Depending on what you are trying to measure, these ‘amplifier photons’ require certain properties, for example a precisely defined wavelength or polarization. So that means I need a way of telling my light source to give me photons with this precisely defined wavelength or very specific polarization.



