# This is the Dawning of the Age of Quantum Materials

An interview with researchers at the Stewart Blusson Quantum Matter Institute:
**Alannah Hallas**, Assistant Professor, UBC Physics & Astronomy
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### Alannah Hallas

We talk about it being the dawn of the Age of Quantum Materials, so we make this analogy with the Stone Age or the Bronze Age. And we say that we've recently emerged from the Silicon Age, where so much of our computer technology has relied on our ability to make pure silicon chips. The next age will be the Age of the Quantum Material. There's tremendous promise that they could unlock all sorts of technologies, things that don't exist yet.

### What is the mission of the lab you're building?

The name of the lab that we're building right now is the Quantum Materials Design Lab. What we're interested in doing is building a pretty comprehensive suite of tools, all the way from the quite conventional, all the way to the most advanced, the most state-of-the-art, and using that to be able to grow the materials that we design. We're taking some theoretical models, some ideas for some interesting physical state, and understanding what the essential ingredients of that state are, and converting those ingredients into actual chemical elements arranged onto a chemical lattice, and growing the material of that compound.

We're kind of looking for the unknown unknowns most of the time. A lot of times, in fact, you end up growing a material that you weren't expecting to grow. You went in hoping to make something, and you got out something

else. And since you have it, you're definitely going to measure it. And that's how we discover a lot of the new things.

### Graham Johnstone

All the time in physics, we discover these beautiful, emerging properties just through complete serendipity. And it can happen to anyone. I could come into the lab one day, put something together that I just had a thought or came out of my brain, and voila, it could be something new, find something that inspires a new field. Something that the next generation can work on.

### Alannah Hallas

I want to have a lab where we can be relatively unconstrained in what we try to grow. And that means having capabilities that are at the boundaries of what's possible.