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Plastics from another Perspective

Questions	Response from presenter
Do you think your research could have implications in the plastic waste already created?	The plastic waste already produced will need a completely different approach. We focus on producing new plastics and improving those processes.
How did you realise which aspects of chemistry you are interested in and how do we do same?	I found what I was most interested in actually via my degree. At school, doing chemistry, I was always convinced I would be most interested in physical chemistry, but it turned out to be completely different once I arrived at University and really started learning indepth about various branches of chemistry. I think if you want to find what in chemistry interests you most, you have to read around various topics and also see what application interest you most and kind or work backwards from there.
On the topic of polymer optimisation, will there be biodegradable plastics in the future or will we rely more on chemicals and enzymes, like PETase, that dissolve some plastics.	I think in the future it will definitely be a combination of both, as it might not be possible to make all plastic biodegrable due to certain properties being more difficult to produce. Also I think even if all future plastic produced becomes biodegradable, we are still faced with the current plastic waste which has been produced and dumped. I think both will be necessary to fully solve the plastic waste issue.
Is it possible to make biodegradable plastic?	It is possible. There is also another issue you to consider though, which is you do not want your plastic to breakdown when you still want to use it. There are, for example, some polymers that breakdown in contact with water but that can't be used for a lot because even normal air contains water and it would break down. Also when the plastic is degraded it should not degrade into something toxic that harms the environment more. So there is a lot to consider. The key is to balance these and that is why people make compostable plastic as then under compost conditions it degrades but not normally.
Is the disposal of such plastic different from the normal plastic we use?	Yes, it would be compostable and so would have to go into compost waste. This would require a new stream of waste potentially. In the group we also aim to make all our polymers fully recycable which due to time I wasn't able to show in the presentation, but many of the ones we make can be reprocessed. Of course this means they have to be removed from waste and collected to then be able to recycle them. This creates obstacles to implementing them fully.
What was your inspiration to complete this research?	I really wanted to do research that was impactful and I have always been passionate about environmental issues. This specific topic also overlapped my chemical interest with my interest in environmental issues.

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When do you think we will be able to see your findings used to make recylable platics	I hope soon and as I said BSAF is using carbon dioxide containing polymers, but I think it will still be a while until it is really widely used for more common plastics, sadly. But maybe some great advances will be made and we can speed things up.
What was your favourite part of MSci in chemistry?	I did an MChem not an MSci, but my favorite bit was really the tutorials. I really enjoyed talking about chemistry and learning about chemistry in a small group. My favorite topic has always been understanding metals and metal complexes and catalyts.