

OPTICS AND PHOTONICS WITH DR XIAOMING YU

TALKING POINTS

KNOWLEDGE

1. When was the first laser invented? Who were the first physicists to patent the discovery?
2. Can you name two physicists who first posited the idea that lasers could be developed?

COMPREHENSION

3. What properties of ultrafast lasers make them attractive to researchers like Xiaoming?

APPLICATION

5. There are a range of applications across many different fields for ultrafast lasers. Can you name some of these? Are there any more possible applications that you can think of that are not listed within the article?

ANALYSIS

6. What benefits to Xiaoming's research have come through collaboration? Can you see how serendipity has benefited the team's findings? In what ways?

SYNTHESIS:

7. Xiaoming talks about a future where nano-robots will exist (something first suggested by Richard Feynman). What do you think this will do to life as we know it? In what ways will this world of the future be better? In what ways might it be worse?

EVALUATION

8. What do you make of Xiaoming's comments on the rewarding aspects of his field of research? Does it alter your views on how scientists come together to drive a particular field forward? How might the field of medicine be changed in the future as a result of Xiaoming's research? Can you think of any possible pitfalls in developing laser technology?

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

- How would you explain this research to a younger audience? Create a poster or PowerPoint aimed at a Year 7 student in your school. Think carefully about how you would use images and simpler language to explain complex ideas.
- Fast forward 20 years and imagine a world that has made the best use of the technologies that Xiaoming alludes to in his article. What do you think may now be possible? Is the world a better place? If so, why? If not, in what ways is it not?

MORE RESOURCES

PHOTONICS AT CREOL

The team at CREOL has put together a wide range of resources that can help teachers, industry professionals and people like you understand more about photonics!

<https://photonics.creol.ucf.edu/resources/>

PHOTONICS FOR A BETTER WORLD

This blog is well worth checking out if you are interested in understanding more about photonics and its potential applications:

<https://photonicsforabetterworld.blogspot.com/>