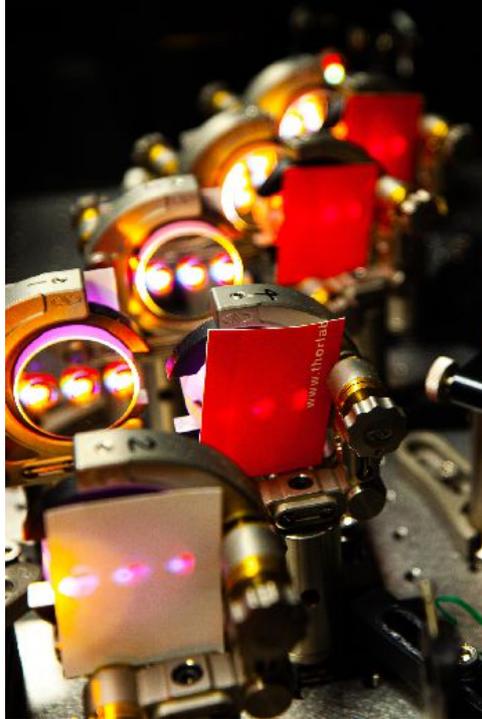


Scientists develop technique to observe radiation damage over a quadrillionth of a second

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Scientists at Nanyang Technological University, Singapore (NTU Singapore) have developed a technique to observe how radiation damages molecules over time frames of just one quadrillionth of a second—or a femtosecond.



(<https://phys.org/news/2019-09-scientists-technique-quadrillionth.html>)

- i** Credit: Nanyang Technological University Scientists at Nanyang Technological University, Singapore (NTU Singapore) have developed a technique to observe how radiation damages molecules over time frames of just one quadrillionth of a second—or a femtosecond.
- i** This allows the research team to see radiation damage occur in biological tissue and molecules with greater precision and clarity than ever before.
- i** The study used methods from femtochemistry to capture how atoms and molecules behave at ultra-short time scales, as in the formation or breaking of chemical bonds that take a few quadrillionths of a second, or femtoseconds.
- i** Uncovering how radiation alters molecules Associate Professor Loh and his team set out to understand how ionizing radiation affects biological molecules.
- i** High-resolution spectroscopy had previously been used to study phenoxide in its gaseous form, and from it researchers had observed a relatively simple behavior: when struck by ionizing radiation, each phenoxide molecule vibrates at a single frequency, like a bell ringing in a single clear tone.
- i** Using a pulsed-laser apparatus, the NTU team was able to record how radiation damages phenoxide molecules dissolved in water.