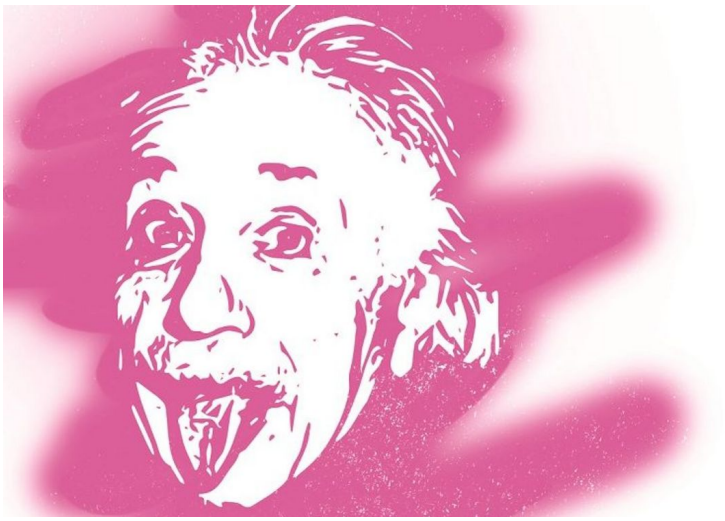

ATHANASSIOS KALIUDIS

60 years of lasers: Wormholes and Einstein

Or why it's better not to voyage into the past

The laser was invented 60 years ago, which sounds like an eternity to me. I can't remember that far back, because I wasn't born yet and nor were my parents. But I work with lasers every day, all day long, so I know almost everything about that time. Well, "everything" books and biographies and articles. I would have loved to have been a lab assistant there in 1960 when American physicist Theodore Maiman demonstrated the first operable laser. He saw with his own eyes that the light beam behaved in exactly the same way that Albert Einstein had described in his theory of stimulated emission more than 40 years earlier

If I could travel back in time, I would tell Maiman about all the amazing things we can do with lasers now. I would reassure him that he was right, and that we have found countless applications for what his critics called a "solution looking for a problem.

» **If I could travel back in time, I would tell Maiman about all the amazing things we can do with lasers now.**

Athanassios Kaliudis, Spokesperson laser technology at TRUMPF

But how do I become a time traveler? This dream of humankind has been the subject of hundreds of books and movies and TV series, proposing all imaginable ways of traveling through time. The problem is, they all belong to the realm of science fiction. So tough luck, Kaliudis, you can't tell Maiman what a brilliant invention the laser turned out to be. Or can you? What would Einstein say? After all, our modern-day perception of the universe is based on his theories of general and special relativity. And it was a laser interferometer that proved the existence of gravitational waves, as Einstein had predicted. IN SHORT, if I follow Einstein's theories, I could travel back in time through a wormhole, provided it remains stable for long enough and creates a passage that links different points in the space-time continuum. So that's feasible. As for the vehicle for my journey through time, I would ask Elon Musk to lend me a spacecraft from his SpaceX project.

After witnessing the birth of the laser, I would climb back into my spaceship and return to Earth barely older than I was when

I left, thanks to the time dilation effect. Accelerating the engines to close to the speed of light, I would cruise through space for a while, but time would pass more slowly for me up there than for the folks back on Earth. I would land in 2020 and be able to join in the party to celebrate the laser's 60th anniversary.

Of course, that's all on condition that my journey back in time doesn't trigger a butterfly effect, leading to a kind of grandfather paradox that would make my own future existence and that of the laser impossible.

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