Exclusive: Einstein reacts to discovery of gravitational waves

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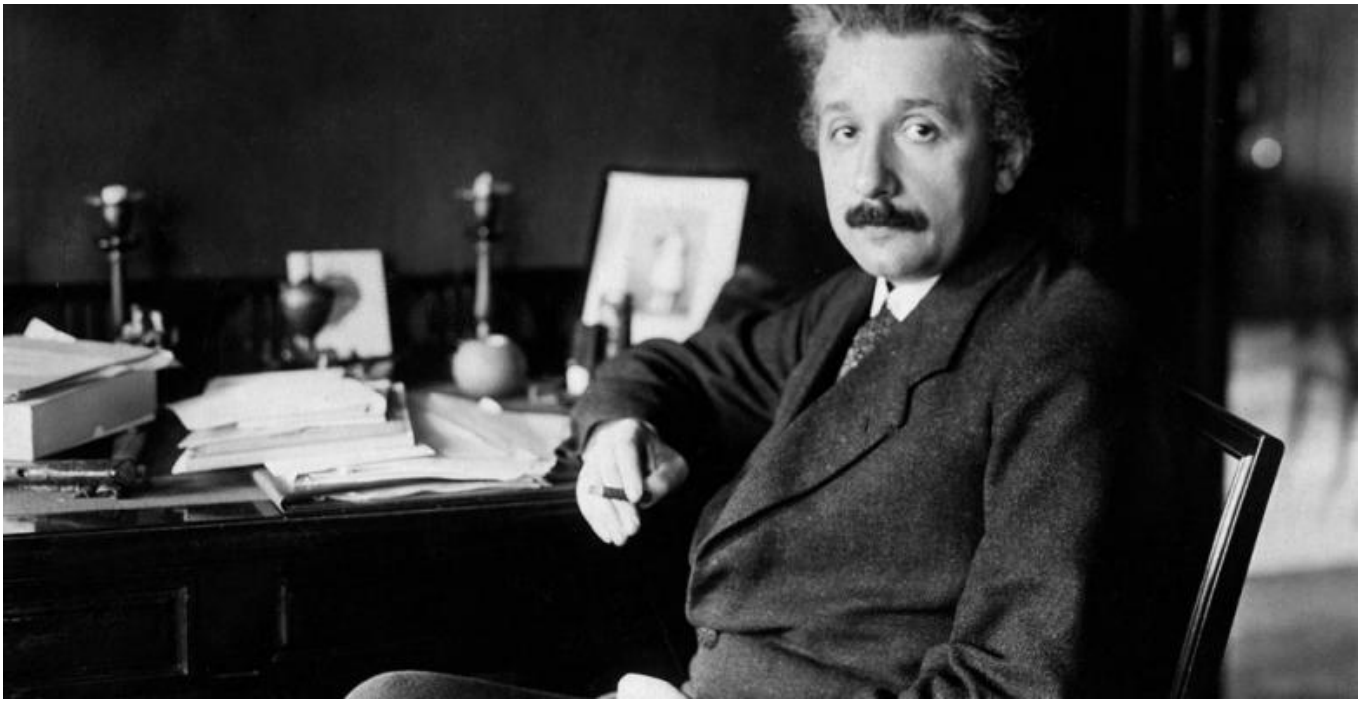

If you ask me whether there are gravitational waves or not, I must answer that I do not know. But it is a highly interesting problem[1].

That's the thing, dude – they've just found them! What's your reaction?

Theory finds the justification for its existence in the fact that it correlates a large number of single observations, and it is just here that the "truth" of the theory lies.

Heady. Take me back, what was life like for you when you studied gravitational waves in the 1910s?

Scientifically, I'm having a little breather. I examined gravitational waves, most recently the quantum theory of light emission and absorption, and the causes of lift in flight.

It's good to keep busy. I heard you actually found an error in your original 1916 paper on relativity that dealt with gravitational waves, and had to revisit the matter in 1918?

The important question of how gravitational fields propagate was treated by me in an academy paper one and a half years ago. However, I have to return to the subject matter since my former presentation is not sufficiently transparent and, furthermore, is marred by a regrettable error in calculation.

We all make mistakes. But listen, black holes are also a consequence of relativity, yet few people believed they existed when you were alive. How would you have searched for gravitational waves in your day?

Even the dynamic gravitational fields generated by the rotation of the Earth and sun, for which we have the moon or the inner planets… as sensitive indicators, remain below the limit of observation.

Not much hope then. So tell me, what exactly are these gravitational waves**?**

I'll send you the wave paper; it's quite pretty.

Thanks, but I'm no Einstein – could you explain it for me without the equations?

I do this the more gladly as there is a certain danger that the – unfortunately – rather complicated mathematical form of the theory threatens to overshadows its simple (and natural) physical content.

Hit me.

It is well known that the approximate method of integration of the gravitational equations of the general relativity theory leads to the existence of gravitational waves[2].

Hmm, I think I need to go back to basics.

I'm sending you a copy of the exposition of the general theory of relativity without the presumption of your really reading it.

Thanks, I guess. So with the last prediction of relativity in the bag, what's next?

It seems that a more complete quantum theory would also have to bring about a modification of the theory of gravitation.

In other words, we're not done yet**. Thank you for the interview Al, it's been a pleasure.**