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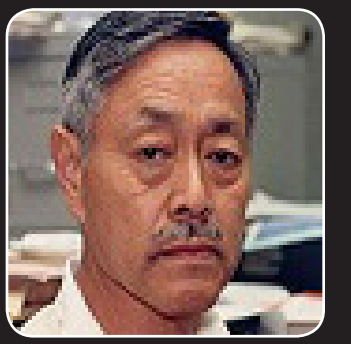

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THE PHYSICAL METRIC IN GENERAL RELATIVITY, SIZE OF BLACK HOLES AND NEUTRON STARS AND THE EXISTENCE OF DARK MATTER

By choosing the metric (called physical metric) in general relativity as the exact solution to the Einstein equation that fits the time delay data, one can determine the size and gravitational redshift on the surface of compact objects (neutron stars and black holes). The author shows that the physical metric is invariant by rotation. As a result, the frequencies of gravitational waves from pulsars are represented as n * f /√3 for pulsar frequency f and harmonics n. Based on this result, the author has identified potential pulsar candidates with gravitational wave spectra. Using the size of black hole to be 2.60 * Schwarzschild radius and gravitational redshift to be √3 in the physical metric, the author will examine the masses of black holes in black hole mergers in LIGO data.

Biography

Yukio Tomozawa has obtained his DSc in 1961 from Tokyo University. He was an Assistant Researcher at Tokyo University (1956) and at Tokyo University of Education (1957-1959) and Member at the Institute for Advanced Study, Princeton, NJ (1964-1966). He was an Assistant Professor, Associate Professor, Professor and Emeritus Professor at the University of Michigan, USA. He found that the Schwarzschild metric does not fit the data of time delay experiment in the field of general relativity. He has introduced a physical metric which fits the data. It was constructed with the constraint that the speed of light on the spherical direction is unchanged from that in vacuum. This modification changes the way we understand the nature of gravity drastically. In particular, the nature of compact objects, neutron stars and black holes, is very different from that described by the Schwarzschild metric. It also explains the dark energy, supernova explosion and high energy cosmic ray emission from AGN (Active Galactic Nuclei), massive black holes.

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