

Quantum Gravity 278.0: Serbia Finds Black Hole Laser and Solution of Information Loss Paradox

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Vldan Pankov, Rade Glavtovic, Symo Ciganovic, Dusan-Harper Petkov, and Lovro-Lika Martinovic of Faculty of Science and Dimnazija Serbia except 2nd author Military-Medical Academic Serbia, in "Single horizon black hole 'Laser' and a solution of the information loss paradox," 15 pages, arXiv: 0807.1840 v1 [gr-qc] 11 Jul 2008, have obtain a single horizon black hole behaving as a laser concetpually analogously in many ways to Carley and Jacobson's work on a 2-horizon black hole "laser".

Their solution to the "information loss paradox" involves a duality between macroscopic and microscopic black hole scenarios in which the former changes to the latter and prompts stimulated emission – so information isn't lost due to emission of laser light. The duality is analogous to string theory T-duality, here involving the horizon radius R being inverse to the horizon radius of its dual R_1 and vice versa. There is a similar duality between minimal system mass m_1 and macroscopic black hole mass M . For a macroscopic black hole, $M \gg m_1$, while for microsoic black hole $m_1 \geq M_P \geq M$ (M_P is Planck mass). A Schwarzschild black hole has mass M and Schwarzschild radius $R = 2GM/c^2$, G the gravitational constant.

In Probable Causation/Influence (PI), Causation is always emphasized, and from a Causal viewpoint black holes and similar singularities play a key role in generating mass, for example because of the association of central galactic black holes with new stars. The laser scenario makes the most sense from the viewpoint of PI as generating mass via a black hole laser operating on the "structure" of spacetime itself. This would probably occur before the alleged evaporation of black holes to a relatively "weak level" from the viewponit of PI, but it is encouraging to see it occurring at all even in well-motivated theory.

See also E.J. Copeland and A. Lahiri, Class. Quant. Gravity 12 (1995) L113, also published in arXiv: gr-qc/9508031, and for example Wikipedia's "Stimulated emission".

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