

Abstract Submitted
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Possible appearance of an event horizon in high energy collisions and in strong interaction of particles ALEXANDER PANIN, Utah Valley University — General relativity predicts that a motion with acceleration creates an event horizon behind the accelerating object (at the distance $c^2/2a$ where a is the magnitude of the acceleration, c – speed of light). When high energy particles collide they undergo strong acceleration which should result in the appearance of a dynamic event horizon (DEH) nearby. This event horizon may limit the strength of their mutual interaction as well as the interaction with the distant surrounding (while they are in accelerated motion). While this effect is negligible on the atomic scale (due to small accelerations involved), it could be observable in short range collisions of high energy particles. This effect (the appearance of DEH) can also explain the difference in the strengths of fundamental interactions as GR corrections imposed on a single (unified) interaction when the interacting particles are in the different state of motion.

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