

GR 7: Schwarze Löcher II

Zeit: Mittwoch 8:30–8:45

Raum: HS 6

GR 7.1 Mi 8:30 HS 6

Highly relativistic particles as an invisible and a large reservoir of mass in the Universe ? — ●KARL OTTO GREULICH — Fritz Lipmann Institute Beutenbergstr.11 D 07745 Jena

At a critical speed given by the Lorentz factor the relativistic mass of a particle corresponds to that of the Planck mass. Above this mass and speed the Schwarzschild radius becomes larger than the de Broglie wavelength, i.e the particle reveals properties of a black microhole * it becomes invisible. For nucleons this is approx. $10 \exp 19$ times of

its mass at rest, With the assumption that particles with a potential rest mass of the order of 10 000 Sun masses still have, since the big bang, such a high speed, it can be explained that the major part of the Universes mass appears as *dark*. It also becomes plausible that even today visible mass is generated from virtually the vacuum, simply by decelerating down such fast particles by collisions with slow matter. References: K.O. Greulich J Mod Phys 1, 300 - 302 (2010); K.O. Greulich SPIE Proceedings 8121-15, (2011); for downloads see http://www.fli-leibniz.de/www_kog/ then klick *Physics*