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Instant displacements of particles DMITRI RABOUNSKI, Independent Researcher, FLORENTIN SMARANDACHE, University of New Mexico, LARISSA BORISSOVA, Independent Researcher — Instant displacements of particles are naturally permitted in the space-time of the General Theory of Relativity. Teleportation of substantial particles and photons realizes itself in different space-time regions. However, it would be a mistake to think that teleportation requires acceleration of a substantial particle to super-light speeds (the tachyon region), while a photon needs to be accelerated to infinite speed. If gravitational potential is essential and the space rotates at a speed close to light velocity, substantial particles may be teleported. Photons can reach the teleportation condition easier, because they move at light velocity. From the viewpoint of a regular observer, as soon as the teleportation condition is realized in the neighborhood around a moving particle, such a particle "disappears" although it continues its motion at a sub-light coordinate velocity u^i(or at the velocity of light) in another space-time region invisible for us. Then, having its velocity reduced, or if something else disrupts the teleportation condition (reduction of gravitational potential or the space rotation speed), it "appears" at the same observable moment at another point of our observable space at that distance and in that direction of its u^i.

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