Abstract Submitted
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Neutrino and Superluminal Limiting Velocity JOSIP SOLN, Retired — From the relativistic kinematics one derives the relativistic bicubic equation for the particle limiting velocity in the arbitrary reference frame. The three solutions, in quadratic forms, depending on the particle mass, m, energy, E, and the ordinary velocity, v, are all given in exact forms. In a frame where mv^2/E is very small, the solutions are given as Taylor series from which one recognizes just one solution as physically acceptable and denoting it as C. For a massless particle, m=o, C=v, the particle velocity,while for a photon C becomes luminal, C=c, with c the light velocity. In the OPERA experiment [1], one measures the muon neutrino velocity with E=17GeV at a distance of 730 km. The mass of the neutrino pushes the C values upward from c which, however is neutralized by a large value of E and could be neglected. Restricting ourselves to the OPERA results for which v >,=c,and for the sake of completeness, assuming m=0.05eV, the solution for C turns out to be slightly larger than c, C >,=c, with the largest value C=1.000002c.

[1] T. Adam et al., arXiv:1212.1276

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