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## On a nonlinear gravitational wave

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An exact, plane wave solution of the gravitational field equations is investigated. The source stress tensor is represented by an anisotropic null fluid with energy flux to which the energy density  $\rho$  and the pressure  $p_z$  are negative but finite throughout the spacetime. They depend on a constant length (taken of the order of the Planck length) and acquire Planck values close to the null surface  $t - z = 0$ ,  $z$ -axis being the direction of propagation. The timelike geodesics of a test particle are contained in a plane whose normal has constant direction and the null trajectories are comoving with a plane of fixed direction.

### Summary

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