

The null-surface formulation of general relativity is equivalent to standard general relativity (to within a conformal factor), but uses families of null surfaces instead of a metric or a connection. Even in 2+1 dimensions, the field equations of the null-surface formulation are extremely difficult to solve. Only two nontrivial solutions have previously been found and this work presents a third. The solution is exact and can be expressed parametrically in terms of elementary functions. The spacetime is of Petrov type N and has positive non-constant scalar curvature, R . The source can be interpreted as a zero-current electromagnetic field in a Lorentz-invariant vacuum. The strong energy condition is violated, but all of the other energy conditions hold. The optical scalars, expansion, shear, and twist, are all zero.