1158-83-371 **Christopher Edward Alexander*** (christopher.alexander.ca@gmail.com), CA. *General relativistic self-similar waves that induce cosmic acceleration without a cosmological constant.* Preliminary report.

A two-parameter family of exact, global, spherically symmetric, self-similar, shock-wave solutions of the Einstein field equations for a perfect fluid are constructed. The solutions are obtained by matching a two-parameter family of Friedmann-Lemaitre-Robertson-Walker (FLRW) type solutions to the one-parameter family of static solutions across a spherical shock surface. The families of FLRW type and static solutions will be assumed to have isothermal equations of state of the form $p = \sigma\rho$ and $\bar{p} = \bar{\sigma}\bar{\rho}$ respectively, with the constants σ and $\bar{\sigma}$ representing a single parameter for each family. The remaining parameter, denoted by a, is the *acceleration parameter* and represents a perturbation from the original FLRW solution, the current cosmological model for the Universe. Neither family of solutions incorporate a cosmological constant but cosmic acceleration is still present in the family of shock-wave solutions, with the acceleration parameterised by a. The conservation of mass and momentum across the shock surface imposes a constraint on the parameters, for which an implicit expression is obtained. (Received March 03, 2020)