New exact dynamic field solutions of Einstein’s equation
FRANKLIN FELBER, Starmark, Inc. — An exact metric first derived, but not ana-
alyzed, by Hartle, Thorne, and Price [1] is used to calculate the exact time-dependent
gravitational field of a spherical mass moving with arbitrarily high constant veloc-
ity. The exact field solutions [2] confirm that even the weak field of a spherical mass
moving faster than $3^{-1/2}c$ is repulsive in the forward and backward directions [3].
The exact threshold conditions required for gravitational repulsion of particles at
rest are determined as a function of source speed and field strength and particle
position with respect to the relativistic source. The results are consistent with the
repulsion of relativistic particles by a weak static Schwarzschild field, discovered 85
years ago by Hilbert [4].

Paradigm, edited by K. S. Thorne, R. H. Price, D. A. Macdonald (Yale U. Press,
New Haven, Conn., 1986), Ch. V.