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**Submitter :** C. Iselin
**Language :** Fortran 4

**Library:** PGMLIB
**Submitted:** 01.07.1974
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# Beam Transport Simulation, Including Decay

TURTLE is designed to simulate charged particle beam transport systems. It allows evaluation of the effects of aberrations in beams with a *small phase space volume*. These include higher-order chromatic aberrations, non-linearities in magnetic fields and higher-order geometric aberrations due to the accumulation of second-order effects. The beam at any point in the system may be represented by one- or two-dimensional histograms. TURTLE also provides a simulation of decay of pions or kaons into muons and neutrinos.

TURTLE uses the same input format as TRSPRT (W150). An input stream set up for TRSPRT can thus be used for TURTLE with only a few additions.

**Structure:**

Complete PROGRAM
User Entry Names: TURTLE
Files Referenced: INPUT, OUTPUT
External References: RANF (G900), UBUNCH (M409), TIMEL (Z007), ABEND (Z035)

**Usage:**

See **Long Write-up**. TURTLE is accessed from PGMLIB as described in 'Execution of Complete Programs, PGMLIB' in Chapter 1 of the Program Library Manual. Page 50 of the **Long write-up** is obsolete.

**Source:**

FNAL. The parts concerning decay have been written at CERN.

**References:**

1. K.L. Brown and C. Iselin DECAY TURTLE, a Computer Program for Simulating Charged Particle Beam Transport Systems, including Decay Calculations, CERN 74-2 (1974).

A copy of Ref. 1 is available as **Long Write-up**.

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