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Peter D Miller* (millerpd@umich.edu), Department of Mathematics, East Hall, 530 Church St., Ann Arbor, MI 48109. *On the semiclassical limit of the sine-Gordon equation.*

I will discuss some aspects of recent work on the Cauchy problem in laboratory coordinates for the sine-Gordon equation, subject to a semiclassical scaling that introduces an essential separation of scales into the dynamics. This type of scaling naturally occurs in the modeling of superconducting Josephson tunneling junctions in which macroscopic (laboratory scale) excitations create a large number of quanta of magnetic flux whose nonlinear interactions can become complicated. This is joint work with Robert Buckingham. (Received August 12, 2008)