1010-86-31   **Lou Fishman*** (`Shidi53@aol.com`), MDF International, 105 Wycliff Court, Slidell, LA 70461.
Phase Space and Path Integral Methods in Seismic Imaging.

Wave equation migration is a commonly used technique in seismic imaging and inversion. The Generalized Phase Shift Plus Interpolation (GPSPI) algorithm is a particular example of this general approach. The wave field extrapolation process in GPSPI is based on physical arguments. Phase space and path integral methods provide the complete mathematical framework for GPSPI, in particular, and wave equation migration, in general. These methods establish that GPSPI is actually the leading-order term in a uniform, high-frequency asymptotic expansion of the appropriate, governing operator symbol. Several widely held beliefs in the seismic imaging and inversion community are shown to be incorrect, and improved images are readily possible. (Received August 01, 2005)