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Cover

Adiabatic invariance is very useful in nonlinear wave-particle interaction theory for calculating effects like the ponderomotive force on untrapped oscillation-center orbits. However, if a particle gets trapped in a wave trough its oscillation-center velocity becomes that of the wave (i.e. zero in the wave frame). The figure shows the trapping of two particles launched with the same initial wave-frame energy but spatially separated by less than a wavelength. Remarkably, a suitably defined invariant is conserved even through such trapping events. (Robert L. DEWAR and Justin C.-C. YAP, Plasma and Fusion Research Vol.4, 001 (2009) http://www.jspf.or.jp/PFR/)

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