

Abstract Submitted
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SHOCKS Fast-Fracture Periodic-Intermittency VS. Random-Sporadicity in Burst Acoustic-Emission (BAE): Dislocation-Line-Defects Special-Relativity Classical Acoustic-Phonon Maser(CAPM) EDDTA Orgins of “Bak”-“SOC” PETER NEUMANN, YURI KLIMONTOVICH, FRANK NABARRO, fPa/TAT/TATL, ALAN BRAILSFORD, EDWARD SIEGEL — Glassy fast-fracture instabilities and patterns, long-known semi-infinite crack-propagation sub-terminal-velocity Rayleigh-wave-speed versus “2”-D linear-elasticity theory predictions, but rather asymptotic to maximum-speed $< 0.6 v(\text{Rayleigh})$, explicitly experimentally identifies a fast-fracture DYNAMIC-instability(FFDI) not included within fracture linear-elasticity theory. FFDI causes PERIODIC-BAE[E. S.:MSE 8.310(71); PSS:(a) 5, 601/ 607 (71); Xl.-Latt. Defects 5, 277(74);Scripta-Met.:6,785(72);8, 587/617(74); 3rd Tokyo A.-E. Symp. (76); Acta- Met.25,383(77); JMMM 7,312(78); ...] emitted/radiated from advancing-crack in addition to crack-velocity fluctuations causing such low sub-Rayleigh crack-velocities, hinting at dimensionality-dominance in 2-D VS. 3-D lattice-“models” very-provocatively yet another special-case subset of Siegel[MRS Fall-Mtg.,Boston:Symp. On Fractals(89)-5-papers!!!; Symp. On Scaling(90)] SPD/FUZZYICS. Hirth-Lothe-Nabarro-Weertman- provocative finite Burgers-vector dislocations/line-defects singularities terminal-velocity special-case of Einstein’s special-relativity, almost word-for-word Jackson electromagnetics, replaces light-speed by sound-speed!!! Siegel[3rd Tokyo A.-E. Symp.(76); Intl.Quantum-Electronics Conf., Boston (80)]

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