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Dynamic Behaviors of Materials under Ramp Wave Loading on Compact Pulsed Power Generators JIANHENG ZHAO, BINQIANG LUO, GUIJI WANG, TAO CHONG, FULI TAN, CANGLI LIU, CHENGWEI SUN, institute of fluid physics,CAEP — The technique using intense current to produce magnetic pressure provides a unique way to compress matter near isentrope to high density without obvious temperature increment, which is characterized as ramp wave loading, and firstly developed by Sandia in 1998. Firstly recent advances on compact pulsed power generators developed in our laboratory, such as CQ-4, CQ-3-MMAF and CQ-7 devices, are simply introduced here, which devoted to ramp wave loading from 50GPa to 200 GPa, and to ultrahigh-velocity flyer launching up to 30 km/s. And then, we show our progress in data processing methods and experiments of isentropic compression conducted on these devices mentioned above. The suitability of Gruneisen EOS and Vinet EOS are validated by isentropic experiments of tantalum, and the parameters of SCG constitutive equation of aluminum and copper are modified to give better prediction under isentropic compression. Phase transition of bismuth and tin are investigated under different initial temperatures, parameters of Helmholtz free energy and characteristic relaxation time in kinetic phase transition equation are calibrated. Supported by NNSF of China under contract No.11327803 and 11176002

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