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**Mbar pressure generation using converging strong shock waves** ALEXANDER FEDOTOV-GEFEN, SERGEY EFIMOV, LEONID GILBURD, VICTOR GUROVICH, GALINA BAZALITSKI, YAKOV KRASIK, Physics Department, Technion, PLASMA LABORATORY TEAM — The results of underwater electrical wire explosions in microsecond and nanosecond time scales are reported. The main purpose of this research is investigation of parameters of strong shock waves generated by explosion of cylindrical wire array. It was shown that up to ∼24% of the deposited energy is transferred into the water flow mechanical energy. A high uniformity of the generated cylindrical shock waves was revealed. Using cylindrical wire array underwater explosion it was found that converging shock waves can be used to achieve pressure, density and temperature of ∼1.3Mbar, 3.4 g/cm$^3$ and 5000 K, respectively at the vicinity of the axis of implosion with the energy of only 4kJ stored in pulsed power generator. Hydrodynamic simulations showed that using relatively moderate pulsed power generators with stored energy of several hundreds of kJ, the pressure of several Mbar can be achieved at the axis of implosion.

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