

Mean electric field and total near-electrode voltage drops measurements for discharge in hydrogen at initial pressures of ≈ 20 MPa with current amplitude of 1.3 MA

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Research results for discharge initiated by wire explosion in hydrogen at initial pressures of 15–22 MPa and current amplitudes of ≈ 1.3 MA are reported. The new data supplement the previously presented results for initial pressures of 5 [1] and 32 MPa [2] and enlarge the results of research on this topic continuing from [3]. Discharge was initiated by a wire explosion between steel electrodes. The mean electric field in the discharge channel and mean near electrode voltage drops were determined in an experimental series for different interelectrode gaps from 1 to 2 cm at the time of current maximum by extrapolation the interelectrode gap to zero length. The near electrode voltage drop was of ≈ 2.7 kV. The electric field strength in the discharge channel was of ≈ 0.6 kV/cm.

- [1] Pinchuk M, Budin A, Dyachenko A, Krivosheev S and Bogomaz A 2022 *XXXVII International Conference on Equations of State for Matter* (Chernogolovka: IPSP RAS)
- [2] Bogomaz A, Pinchuk M, Krivosheev S, Budin A and Leks A 2021 *XXXVI International Conference on Interaction of Intense Energy Fluxes with Matter* (Chernogolovka: IPSP RAS) p 282
- [3] Bogomaz A A, Budin A V, Pinchuk M E, Rutberg P G and Savvateev A F 2005 *Physics of Extreme States of Matter—2005* (Chernogolovka: IPSP RAS) pp 214–6