INCA - Inductive Discharge Array PHILIPP AHR, TSANKO V. TSANKOV, JAN KUHFE LD, UWE CZARNETZKI, Institute for Plasma and Atomic Physics, Ruhr-University Bochum — A novel low pressure inductive discharge and stochastic electron heating concept is demonstrated experimentally for the first time [1]. Here, electrons are collisionlessly heated in a phase-correlated vortex field array, as proposed theoretically in [2]. These periodic vortex fields are produced by an array of 6 x 6 small inductive planar coils. Easy upscaling to \( m^2 \)-size is possible. Design considerations together with results from various diagnostics are presented. The experimental data show consistently efficient and homogeneous plasma production at pressures below 1 Pa as well as the presence of super energetic electrons. The efficient heating is further demonstrated by the velocity distribution of the electrons. The presented results agree well with theory [3]. Possible applications for this new plasma source include large area processing and space propulsion.