

Abstract Submitted  
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**Zero differential resistance state in 2D dimensional electron system in strong magnetic field.**<sup>1</sup> SERGEY VITKALOV, JING-QIAO ZHANG, The City College of New York, A. A. BYKOV , A. K. KALAGIN, A. K. BAKAROV, Institute of Semiconductor Physics, 630090 Novosibirsk, Russia — We report the observation of a zero differential resistance state (ZDRS) in response to direct current above a threshold value  $I > I_{th}$  applied to a two-dimensional system of electrons at low temperatures in a strong magnetic field. Entry into the ZDRS, which is not observable above several Kelvins, is accompanied by a sharp dip in the differential resistance. Additional analysis reveals instability of the electrons for  $I > I_{th}$  and an inhomogeneous, non-stationary pattern of the electric current. We suggest that the dominant mechanism leading to the new electron state is a redistribution of electrons in energy space induced by the direct current.

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