Coherence length in the quantum Hall effect  KESHAV SHRIVASTAVA, University of Malaya — The Hall effect resistivity plateau has only one e and hence only one electron and h/e comes from the flux quantization. Hence the number of electrons at the plateau is one or a small number. As the field moves away from the plateau, there is a phase transition from single electron state to a cluster state. As the field further moves, the cluster breaks and single/small particle state is formed again. The coherence length which depends on the temperature, determines the variation of resistivity as a function of magnetic field. The exponent of temperature which determines $\partial R/\partial B$ is the inverse of the exponent of the coherence length. At the plateau the electrons are localized according to the Anderson model except that the plateau location depends on spin. [1] K. N. Shrivastava, AIP Conf. Proc.1017,47-56(2008); 1017, 422-428(2008); 1136, 469-473(2009); 1150, 59-67(2009); 1169, 48-54(2009).