The vortex Nernst effect and H_{c2} in cuprates and new results on layered cobaltates

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I will review the vortex Nernst effect in cuprates obtained by my group over the past 3 years. The focus will be on the phase diagrams in the H-T and T-x planes. I will discuss evidence pointing to the loss of long-range phase coherence as the determining factor for the collapse of the Meissner effect at T_c. The doping dependence of the pairing strength obtained from H_{c2} measurements will also be compared with various theories. New results obtained on the layered cobaltate Na_xCoO_2 will be discussed. The large thermopower is shown to be enhanced by a dominant spin-entropy component. The Hall coefficient increases without apparent saturation to 500 K. Both are distinct signatures of non-Fermi liquid behavior.