The study of the phase diagram of matter is a new approach to investigate QCD on its natural scale, $\Lambda_{QCD}$, and to address the fundamental questions of confinement and chiral-symmetry breaking.

Results from the SPS heavy ion program, obtained with S and Pb beams, reveal that very dense matter and high energy densities are produced in these reactions, leading to new phenomena, beyond extrapolations of p-A results.

Expansion, energy deposition, particle abundances and momentum distributions, reveal a state of matter close to the critical conditions predicted for a phase transition.

The LHC Experiment devoted to Heavy Ions: ALICE

The mass and width of light vector mesons, observable through their leptonic decays, are expected to change in dense matter if chiral symmetry is restored. This could explain the enhancement observed in the low mass dilepton spectrum.

The addition of silicon pixel detectors has been shown to vastly improve the detection of leptons, opening interesting perspectives for the near future.