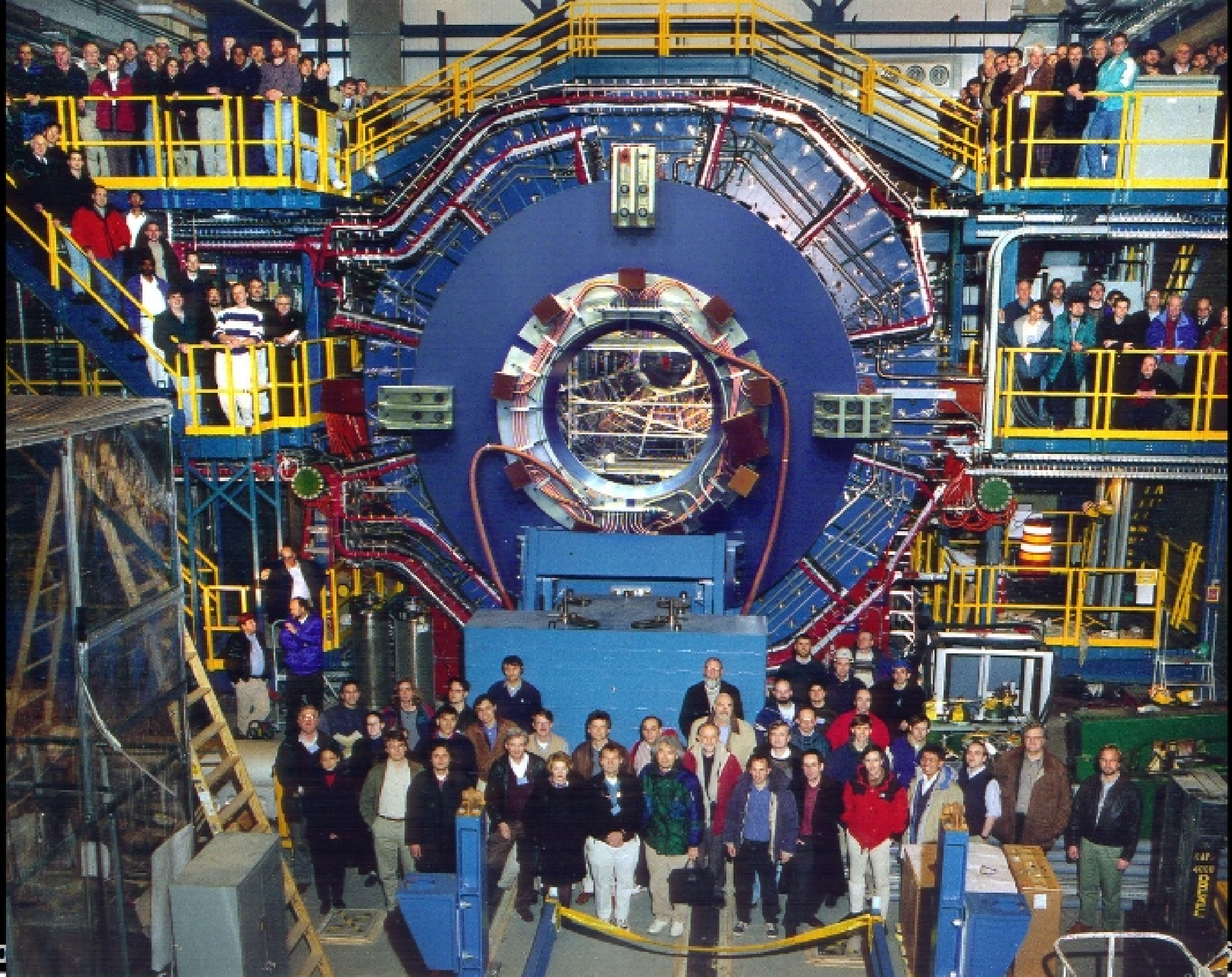


# ***Evidence for a Quark-Gluon Plasma at RHIC***

## ***Part 2***





# On the "First Day" (at RHIC)

## Initial Observations:

Large produced particle multiplicities

ed. - "less than expected! → gluon-saturation?"

→  $dn_{ch}/d\eta|_{\eta=0} = 670$ ,  $N_{total} \sim 7500$  → CGC?

> 15,000  $q + \bar{q}$  in final state, > 92% are produced quarks

Large energy densities ( $dn/d\eta$ ,  $dE_T/d\eta$ )

→  $\epsilon \geq 5 \text{ GeV}/\text{fm}^3$        $\epsilon \geq 5 - 10 \text{ GeV}/\text{fm}^3$

30 - 100 x nuclear density

Large collective flow

ed. - "completely unexpected!"

→ Large early pressure gradients, energy & gluon densities

→ Hydrodynamic & requires quark-gluon equation of state!

Quark flow & coalescence → constituent quark degrees of freedom!

