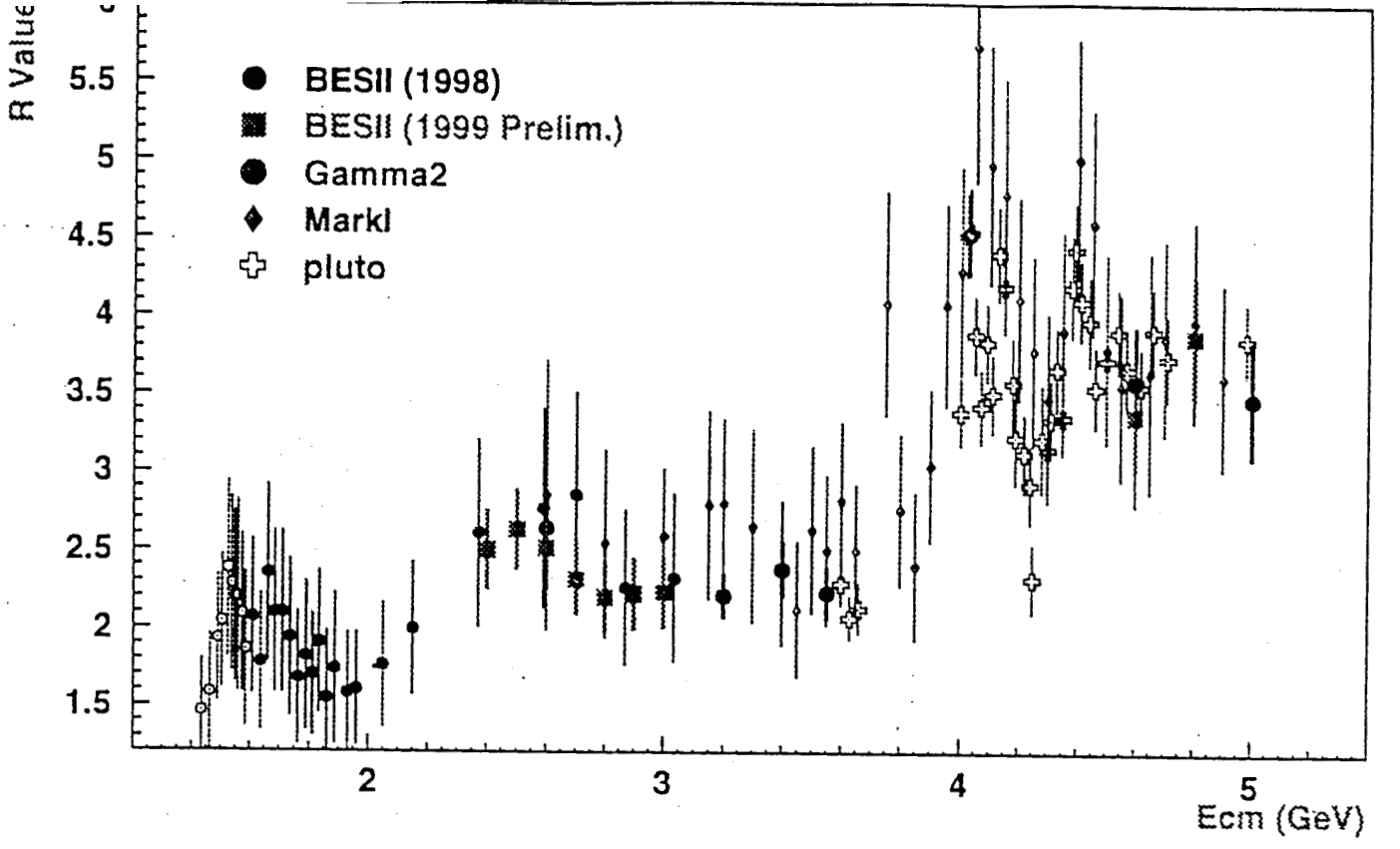
MAIN PHYSICS ITEMS

measured by means of PEP-N:

- Precision Measurement of R
  (hadronic corr. to $\alpha(M_Z^2)$ and to $g_\mu - 2$)
  (threshold behaviour not understood).

- Baryon time-like Form Factors
  ($n\overline{n} \sim 5 \div 10$ expectation)
  (the $p\overline{p}$ threshold behaviour)
  (strange baryons to be measured).

- Narrow resonances near $N\overline{N}$ threshold.



$E_{min} - E_{max}$ (GeV)	$\Delta\alpha_{had}(M_Z^2) \times 10^4$		σ	$a_\mu^{had} \times 10^{10}$
	Data	Theory		
$4m_\pi^2 - 1.8$	$56.9 \pm 1.1^{(*)}$	–	–	636.49 ± 7.41 (D)
1.8 – 3.700	32.4 ± 3.1	$24.50 \pm 0.33^{(*)}$	2.5	33.84 ± 0.53 (T)
$\psi(3770)$	$0.29 \pm 0.08^{(*)}$			0.17 ± 0.02 (D)
3.700 – 5.000	$15.8 \pm 1.7^{(*)}$	17.06 ± 0.58	0.5	6.93 ± 0.62 (D)
5.000 – 10.500	39.9 ± 1.4	$41.55 \pm 0.40^{(*)}$	1.0	7.43 ± 0.09 (T)
Υ(4S,10860,11020)	0.38 ± 0.10			
10.500 – 12.000	7.6 ± 0.5	$8.19 \pm 0.32^{(*)}$	0.4	0.55 ± 0.03 (T)
12.000 – 40.000	75.2 ± 2.7	$77.96 \pm 0.30^{(*)}$	1.0	1.64 ± 0.02 (T)
40.000 – ∞	–	$41.98 \pm 0.22^{(*)}$	–	0.16 ± 0.00 (T)
J/ψ(1S,2S)	$9.68 \pm 0.68^{(*)}$	–	–	7.80 ± 0.46 (D)
Υ(1S,2S,3S)	$0.98 \pm 0.15^{(*)}$	–	–	0.09 ± 0.01 (D)
$4m_\pi^2 - \infty$	$277.8 \pm 2.2_{exp} \pm 1.4_{theo}$			$695.1 \pm 7.5_{exp} \pm 0.7_{theo}$

*) Value used for final result of $\Delta\alpha_{had}(M_Z^2)$ (last line).

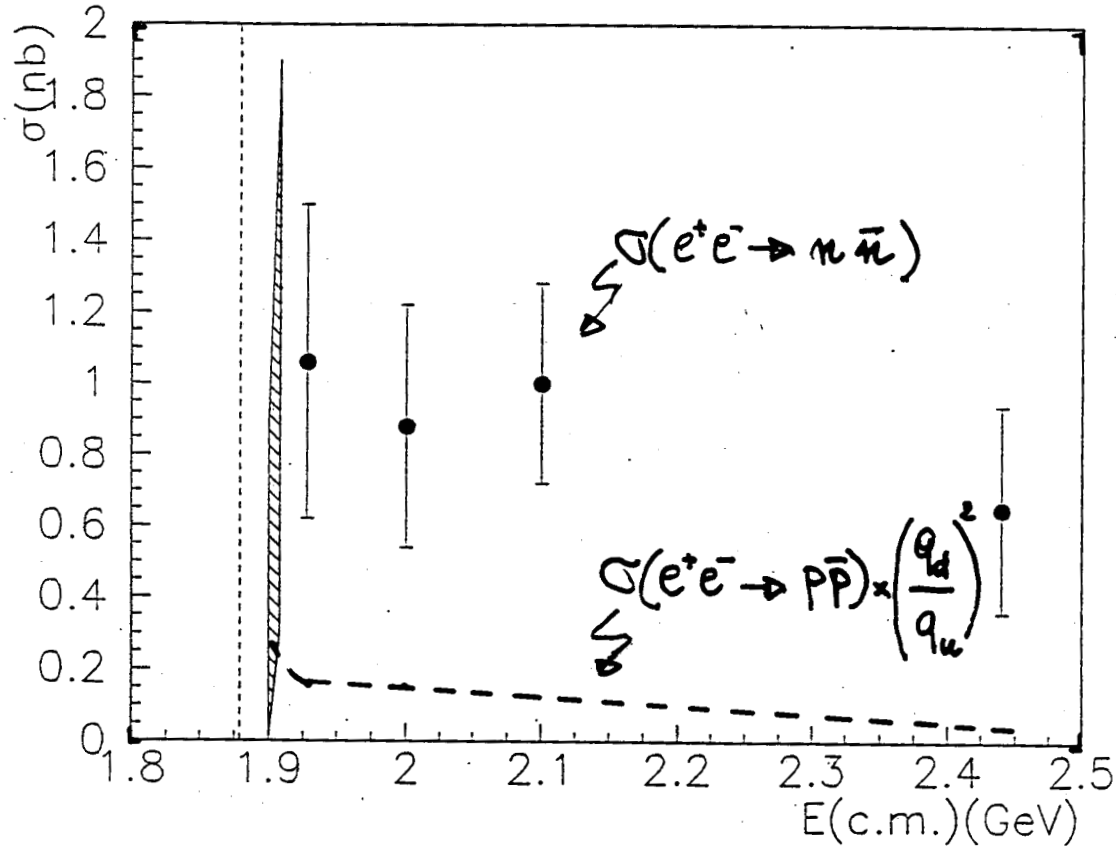


Figure 13: $e^+e^- \to n\bar{n}$ cross-section as a function of the center of mass energy. The result for $\sqrt{s} = 1.9$ GeV is shown as a shaded area between two points corresponding to the two different hypotheses on the actual c.m. energy of Adone (see text). The $n\bar{n}$ threshold is also shown.

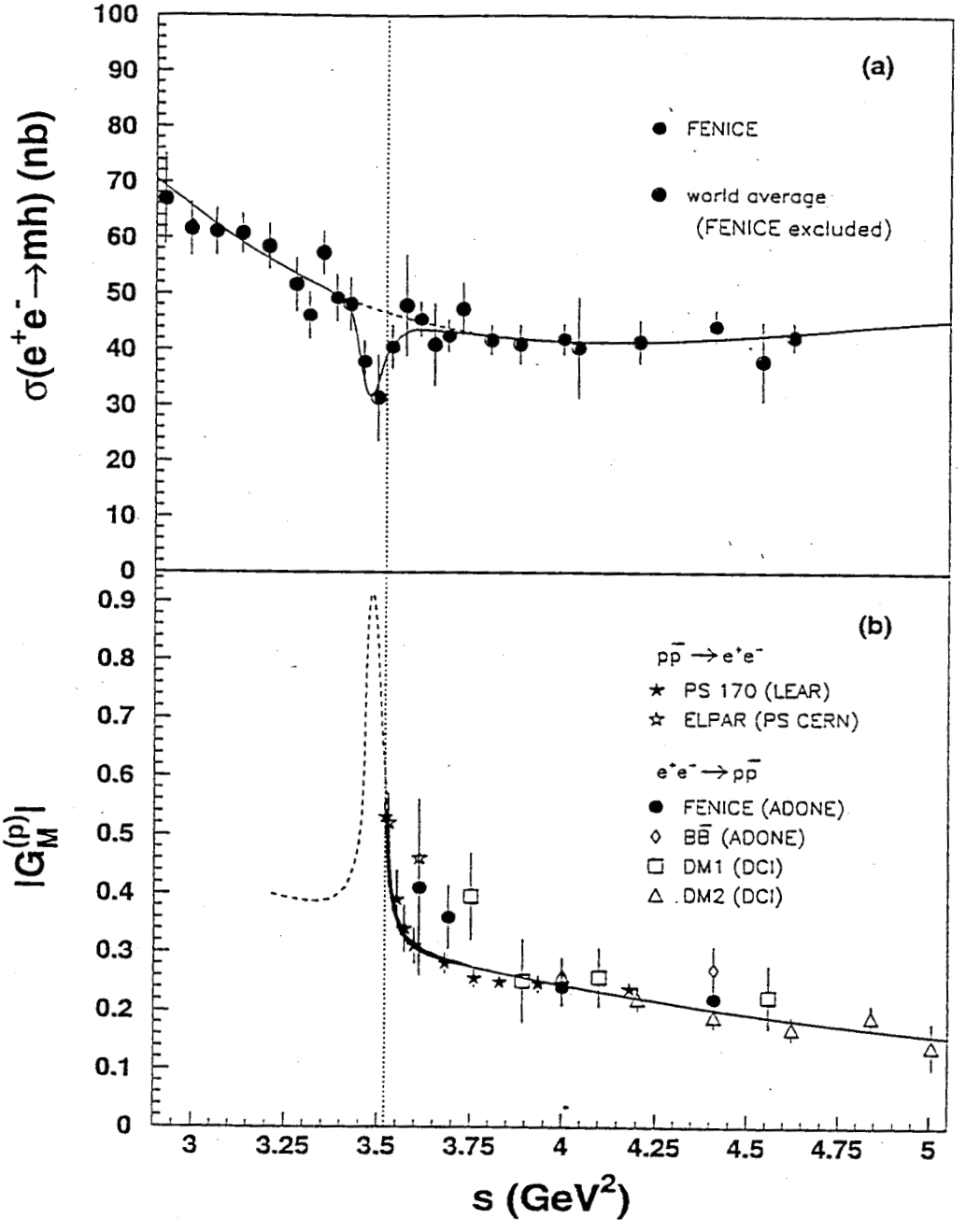


Figure 25: (a) Total multihadronic cross section averaged over the different experiments, with superimposed the result of the fit to a narrow resonance close to the $N\overline{N}$ threshold; (b) comparison of the proton form factor data to the expected behaviour for the presence of such a resonance.

δ Be $\rightarrow (5\pi\ 5\pi)$ Be

$t < 40$ Mev^2

E687 at FNAL