Average $e^+e^-$, $pp$, and $\bar{p}p$ Multiplicity

Figure 39.5: Average multiplicity as a function of $\sqrt{s}$ for $e^+e^-$ and $p\bar{p}$ annihilations, and $pp$ and $ep$ collisions. The indicated errors are statistical and systematic errors added in quadrature, except when no systematic errors are given. Files of the data shown in this figure are given in http://home.cern.ch/b/biebel/www/RPP02.

$e^+e^-$: Most $e^+e^-$ measurements include contributions from $K^0_S$ and $\Lambda$ decays. The $\gamma\gamma2$ and MARK I measurements contain a systematic 5% error. Points at identical energies have been spread horizontally for clarity:


**OPAL**: G. Abbiendi et al., Eur. Phys. J. **C16**, 185 (2000);
K. Ackerstaff et al., Z. Phys. **C75**, 193 (1997);
P.D. Acton et al., Z. Phys. **C53**, 539 (1992) and references therein;


$e^p$: Multiplicities have been measured in the current fragmentation region of the Breit frame:


**ZEUS**: J. Breitweg et al., Eur. Phys. J. **C11**, 251 (1999);

$p\bar{p}$: The errors of the $p\bar{p}$ measurements are the quadratically added statistical and systematic errors, except for the bubble chamber measurements for which only statistical errors are given in the references. The values measured by UA5 exclude single diffractive dissociation:


**UA5**: G.J. Alner et al., Phys. Lett. **167B**, 476 (1986);

(Courtesy of O. Biebel, MPI München, 2001.)