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Precise measurement of hadronic cross section at low energy for $\alpha_{em}(M_{Z0})$ and $(g-2)_{\mu}$

For the precision test of the Standard Model at future $e+e-$ colliders (like TLEP or ILC), as well as for the reduction of the theoretical error of the Muon $(g-2)$, an improvement on the knowledge of the low energy non perturbative effects is mandatory. These effects to $\alpha_{em}(M_{Z0})$ and to $(g-2)_{\mu}$ can be obtained by precise measurements of the hadronic cross sections at low $e+e-$ machine (i.e. around few GeV), like Dafne and other flavour factories.

Summary

Si sottolinea l'importanza di supportare le facilities $e+e-$ a bassa energia esistenti (come per esempio Dafne) o nuove (nuove flavour factories), per la misura di precisione della sezione d'urto $e+e-$ in adroni per la riduzione dell'incertezza sul contributo adronico al running di α_{em} e al $(g-2)$ del muone. Tale incertezza, se non opportunamente ridotta puo' diventare un fattore limitante per il fit EW del Modello Standard ai futuri collisori $e+e-$ tipo TLEP o ILC, o per la misura del $g-2$ del muone.

Ref:

<http://arxiv.org/abs/hep-ph/0608329>

<http://arxiv.org/abs/arXiv:1007.5219>

<http://arxiv.org/abs/arXiv:1308.6176>

<http://arxiv.org/abs/arXiv:1307.7967>

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