

Collider experiment SND and Precision Physics with hadronic e^+e^- cross sections

A.G. Kharlamov^{a,b}, M.N. Achasov^{a,b}, V.M. Aulchenko^{a,b}, Alexey Barnyakov^{a,b}, Konstantin Beloborodov^{a,b}, A.V. Berdyugin^{a,b}, D.E. Berkaev^{a,b}, Alexander Bogdanchikov^a, A.A. Botov^a, Vladimir Druzhinin^{a,b}, Vladimir Golubev^{a,b}, Leonid Kardapoltsev^{a,b}, A.S. Kasaev^a, A.N. Kirpotin^a, Ivan Koop^{a,b}, L.A. Korneev^{a,b}, Aleksandr Korol^{a,b}, S.V. Koshuba^a, D.P. Kovrizhin^a, Andrey Kupich^a, R.A. Litvinov^{a,b}, K.A. Martin^a, Natalya Melnikova^{a,b}, Nickolai Muchnoi^{a,b}, Alexandr Obrazovsky^a, E.V. Pakhtusova^a, K.V. Pugachev^{a,b}, Yu.A. Rogovsky^{a,b}, Elizaveta Rogozina^a, Sergey Serednyakov^{a,b}, A.I. Senchenko^a, Dmitry Shtol^a, Dmitry Shwartz^{a,b}, Z.K. Silagadze^{a,b}, I.K. Surin^a, Yu.V. Usov^a, A.V. Vasiljev^a, Viktor Zhabin^{a,b}, Tatyana Dimova^{a,b}

^a *Budker Institute of Nuclear Physics*

^b *Novosibirsk State University*

Spherical neutral detector (SND) is an experiment for e^+e^- annihilation study at moderate energies 0.2-2 GeV. The light quark anti-quark bound states are main subject of study at these energies. The quark anti-quark states express themselves as resonances in the $e^+e^- \rightarrow$ hadronic cross sections. The hadronic cross sections could be recalculated to hadronic vacuum polarization (HVP). The Standard Model predictions today are limited by HVP which is not calculable with modern Quantum chromodynamics theory. In this talk we present the review of the hadronic cross sections measurements at SND and some new measurements: $e^+e^- \rightarrow \pi^+\pi^-$, $\pi^0\gamma$, K^+K^- , $\omega\pi^0$, $K^+K^-\eta$, $\pi^+\pi^-\eta$, $K_s K_L \pi^0$, $\pi^+\pi^-\pi^0\eta$, $\omega\pi^0\eta$ e.t.c.