No doubt the year 2003 will enter the history of particle physics as a year of fundamental discoveries. A series of new mesons have been discovered whose properties are in a strong disagreement with the predictions of conventional QCD-inspired quark potential models. New narrow meson $D^*_{sJ} (2317)$, decaying into $D_s^+ \pi^0$ has been observed by BABAR Collaboration [1] in the first. This observation was soon confirmed by CLEO Collaboration [2], which have also established the existence of a new narrow state with a mass near 2.46 GeV in its decay to $D_s^+ \pi^0$. Belle Collaboration [3] reported the first observation of the $D_{sJ} (2317)$ and $D_{sJ} (2457)$ in B decays: $B \to D_{sJ} (2317)$ and $B \to D_{sJ} (2457)$ with a subsequent $D_{sJ} (2317)$ decay to $D_s^0 \pi^0$ and $D_{sJ} (2457)$ decay to $D_s^+ \pi^0$ and $D_s \gamma$ final states. Both CLEO and Belle observations of $D_{sJ} (2457)$ have recently been confirmed by BABAR [4]. Moreover, Belle Collaboration has recently reported [5] the discovery of a very narrow $X (3872)$-meson state ($\Gamma_X (3872) < 2.3 \text{MeV}$) in the $J/\psi \pi^+ \pi^-$ invariant mass distribution in the $B$ decay $B^+ \to K^+ J/\psi \pi^+ \pi^-$. This observation of Belle Collaboration was confirmed not long since by CDF at Fermilab [6].

The mass measurement presented by CDF 3871.4 ± 0.7 ± 0.4 MeV is in agreement with the result of Belle. It should be noted, in particular, that the mass 2317 MeV is approximately 41 MeV below the $DK$ threshold but the mass 3872 MeV is very near the $D^0 \bar{D}^0$ threshold, while the $D^+ D^-$ channel with approximately 8 MeV higher threshold mass is forbidden for $X (3872)$ decay by phase space. What is remarkable here is that all new narrow states have been observed at the masses which are surprisingly far from the predictions of conventional quark potential models. It is still more remarkable that all new observed states are very narrow, their total widths being about a few MeV. The small widths were found to be in contradiction with quark model expectations. Does it mean the end of the constituent quark model? In any case, this means either considerable modifications in the conventional quark models have to be introduced or that completely new approaches should be applied in hadron spectroscopy.

In our previous papers [8, 4, 14, 11, 12, 13, 14, 15] we have claimed that existence of the extra dimensions in the spirit of Kaluza and Klein together with some novel dynamical ideas may provide new conceptual issues for the global solution of the spectral problem in hadron physics. In fact, we have performed an analysis of experimental data on the mass spectra of the two-nucleon system, two-pion and three-pion systems, strange mesons, charmed and charmed-strange mesons, and found out that simple formulae provided by Kaluza-Klein approach with the fundamental scale calculated before [8] has excellently described the experimentally observed hadron spectra. The results of this analysis are partially summarized in Report [16] presented at Xth International Conference on Hadron Spectroscopy HADRON’03 (August 31 – September 6, 2003, Aschaffenburg, Germany) where it is shown, in particular, that all new observed states mentioned above are excellently incorporated in our theoretically developed conception.

In this note we briefly concern several recent results of E835 Experiment at FNAL that are discussed in the framework of unified picture on hadronic spectroscopy elaborated in our earlier works. It has been established that new E835 Collaboration results provided an additional excellent confirmation of our theoretical conception.

In Table 1 from Ref. [8] the theoretically calculated Kaluza-Klein tower of KK-excitations for the two-nucleon system and the experimentally observed mass spectra of proton-proton and proton-antiproton systems above the elastic threshold have been shown. In Ref. [2] there are the references where the experimental data have been extracted from. It is non-trivial that Kaluza-Klein scenario predicts $M^{pp} = M^{pp}$ i.e. a special sort of (super)symmetry between fermionic (dibaryon) and bosonic states, and Table 1 contains an experimental confirmation of this fact as well. There are the blanks in Table 1 which have to be filled in the future experimental studies. It was pleased for us to hear that E835 have precisely measured directly the mass and width of $\eta_c (1^3S_0)$ in $p\bar{p}$ annihilation: $M (\eta_c) = 2984.1 ± 2.1 ± 1.0 \text{MeV}$ and $\Gamma (\eta_c) = 20.4 ^{+5.7}_{-3.2} ± 2.0 \text{MeV}$ [17]. This new E835 measurement shown in Table 1 by bold-face number just filled the $M^{pp}_{28}$-storey of the Kaluza-Klein tower.

New observations of $p\bar{p} \to \chi_0 \to \pi^0 \pi^0, \eta \eta$ through interference with the continuum and precise measurements of the mass and width ($M (\chi_0) = 3415.5 ± 0.4 ± 0.07 \text{MeV}$...
and \( \Gamma(\chi_0) = 10.1 \pm 1.0 \text{ MeV} \) are also nice news for us. As is seen from Table 2, \( \chi_0 \)-state just occupy the \( M_{\eta \eta} \) storey of Kaluza-Klein tower for \( \eta \eta \) system.

In the same Table 2 new (preliminary though) results of E835 Collaboration \( \text{[18]} \) for the masses of resonances decaying into \( \eta \eta \) have been shown by bold-face numbers. New results of E835 Collaboration \( \text{[18]} \) for the masses of resonances decaying into \( \eta \pi \) have been presented in Table 3 by bold-face numbers too. Asterisks in Tables 2-3 mark the states which have not been seen before. It was a great pleasure to establish that new E835 Collaboration results provided an additional excellent confirmation of our theoretical conception \( \text{[16]} \).

In summary we would like once again to emphasize that the deep idea of existence of the extra dimensions received an additional experimental confirmation. Here we have briefly considered several recent results of E835 Experiment at FNAL that were discussed in the framework of unified picture on hadronic spectra elaborated in our works. It has been shown that quite an interesting and exciting results of E835 Collaboration have excellently been included into unified picture.

This is certainly a remarkable fact that a series of our publications was followed by the fundamental discoveries in hadron spectroscopy mentioned above, and here we would like to point out that strong time correlation as well.

It is clear that further experimental studies with a higher mass resolution are of great importance. In particular, this refers to the problem of a large resonance overlap. It will also be important to learn how one could experimentally extract the fine structures in a broad peak. We believe that the idea of an ultra-high resolution hadron spectrometer \( \text{[19]} \) is a vital experimental problem which can be solved in hadron physics in the nearest future. Anyway, it is too much desirable, and I do hope our most courageous wishes will come true.

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| n  | $M_{n}^{pp}$ MeV | $M_{exp}^{pp}$ MeV | $M_{exp}^{pp}$ MeV | n  | $M_{n}^{pp}$ MeV | $M_{exp}^{pp}$ MeV | $M_{exp}^{pp}$ MeV |
|----|----------------|-------------------|-------------------|----|----------------|-------------------|-------------------|
| 1  | 1878.38        | 1877.5 ± 0.5      | 1873 ± 2.5        | 15 | 2251.68        | 2240 ± 5          | 2250 ± 15         |
| 2  | 1883.87        | 1886 ± 1          | 1870 ± 10         | 16 | 2298.57        | 2282 ± 4          | 2300 ± 20         |
| 3  | 1892.98        | 1898 ± 1          | 1897 ± 1          | 17 | 2347.45        | 2350              | 2340 ± 40         |
| 4  | 1905.66        | 1904 ± 2          | 1910 ± 30         | 18 | 2398.21        | 2390 ± 10         | 2390 ± 10         |
| 5  | 1921.84        | 1916 ± 2          | ~ 1920            | 19 | 2450.73        | 2450 ± 10         |                  |
|    |                | 1926 ± 2          |                  |    | 2504.90        |                  | ~ 2500            |
|    |                | 1937 ± 2          | 1939 ± 2          | 20 | 2560.61        |                  |                  |
| 6  | 1941.44        | 1942 ± 2          | 1940 ± 1          | 21 | 2617.76        |                  | ~ 2620            |
|    |                | ~1945             |                  |    | 2676.27        |                  |                  |
| 7  | 1964.35        | 1965 ± 2          | 1968              | 24 | 2736.04        | 2735 ± 20         | 2710 ± 20         |
|    |                | 1969 ± 2          |                  |    | 2796.99        |                  |                  |
| 8  | 1990.46        | 1980 ± 2          | 1990 ±15          | 25 | 2859.05        |                  | 2850 ± 5          |
|    |                | 1999 ± 2          |                  |    | 2922.15        |                  |                  |
| 9  | 2019.63        | 2017 ± 3          | 2020 ± 3          | 26 | 2986.22        |                  |                  |
| 10 | 2051.75        | 2046 ± 3          | 2040 ± 40         | 27 | 3051.20        |                  |                  |
|    |                | ~2050             |                  |    | 3117.04        |                  |                  |
| 11 | 2086.68        | 2087 ± 3          | 2080 ± 10         | 30 | 3183.67        |                  |                  |
|    |                | ~2090             |                  |    | 3251.06        |                  |                  |
|    |                | ~2122             |                  |    | 3319.15        |                  |                  |
| 12 | 2124.27        | 2121 ± 3          | 2110 ± 10         | 33 | 3387.90        |                  | 3370 ± 10         |
|    |                | 2129 ± 5          |                  |    | 3457.28        |                  |                  |
| 13 | 2164.39        | ~2150             | 2165 ± 45         | 36 | 3527.25        |                  |                  |
|    |                | 2172 ± 5          | 2180 ± 10         | 37 | 3597.77        |                  | 3600 ± 20         |
| 14 | 2206.91        | 2192 ± 3          | 2207 ± 13         | 38 | 3668.81        |                  |                  |
TABLE II: Kaluza-Klein tower of KK excitations for $\eta\eta$ system and experimental data.

| $n$ | $M_{n}^{2\eta}$ MeV | $M_{n}^{2\eta}_{exp}$ MeV | $n$ | $M_{n}^{2\eta}$ MeV | $M_{n}^{2\eta}_{exp}$ MeV |
|-----|---------------------|--------------------------|-----|---------------------|--------------------------|
| 1   | 1097.74             |                          | 33  | 2948.47             |                          |
| 2   | 1107.10             |                          | 34  | 3025.66             |                          |
| 3   | 1122.54             |                          | 35  | 3103.15             |                          |
| 4   | 1143.80             |                          | 36  | 3180.91             |                          |
| 5   | 1170.56             |                          | 37  | 3258.94             |                          |
| 6   | 1202.47             |                          | 38  | 3337.19             |                          |
| 7   | 1239.11             |                          | 39  | 3415.68             |                          |
| 8   | 1280.10             | $f_{2}(1275)$            | 40  | 3494.36             |                          |
| 9   | 1325.01             | $2^{++}(1330 \pm 2)$    | 41  | 3573.25             |                          |
| 10  | 1373.47             |                          | 42  | 3652.31             |                          |
| 11  | 1425.12             |                          | 43  | 3731.54             |                          |
| 12  | 1479.62             | $2^{++}(1477 \pm 5)$    | 44  | 3810.93             |                          |
| 13  | 1536.66             | $f_{2}^{*}(1525)$       | 45  | 3890.47             |                          |
| 14  | 1595.99             | $\pi_{1}(1600)$         | 46  | 3970.15             |                          |
| 15  | 1657.34             |                          | 47  | 4049.96             |                          |
| 16  | 1720.51             | $0^{++}(1734 \pm 4)$    | 48  | 4129.90             |                          |
| 17  | 1785.29             |                          | 49  | 4209.95             |                          |
| 18  | 1851.53             |                          | 50  | 4290.11             |                          |
| 19  | 1919.07             |                          | 51  | 4370.38             |                          |
| 20  | 1987.78             | $4^{++}(1986 \pm 5)$    | 52  | 4450.75             |                          |
| 21  | 2057.54             | $2^{++}(\sim 2030)$     | 53  | 4531.21             |                          |
| 22  | 2128.24             | $2^{++}(2138 \pm 4)$    | 54  | 4611.76             |                          |
| 23  | 2199.80             |                          | 55  | 4692.39             |                          |
| 24  | 2272.14             |                          | 56  | 4773.10             |                          |
| 25  | 2345.18             | $4^{++}(2352 \pm 8)^*$  | 57  | 4853.89             |                          |
| 26  | 2418.86             |                          | 58  | 4934.75             |                          |
| 27  | 2493.13             | $6^{++}(2484 \pm 14)$   | 59  | 5015.68             |                          |
| 28  | 2567.93             |                          | 60  | 5096.68             |                          |
| 29  | 2643.21             |                          | 61  | 5177.73             |                          |
| 30  | 2718.94             |                          | 62  | 5258.85             |                          |
| n  | $M_{\eta\pi}^-\,$ MeV | $M_{\eta\pi}^+\,$ MeV | $M_{\eta\pi}^{\exp}\,$ MeV |
|----|-----------------|-----------------|-----------------|
| 1  | 690.08          | 694.47          |                 |
| 2  | 711.99          | 715.92          |                 |
| 3  | 744.86          | 748.26          |                 |
| 4  | 785.79          | 788.72          |                 |
| 5  | 832.74          | 835.28          |                 |
| 6  | 884.37          | 886.58          |                 |
| 7  | 939.76          | 941.73          |                 |
| 8  | 998.30          | 1000.05         |                 |
| 9  | 1059.49         | 1061.07         |                 |
| 10 | 1122.97         | 1124.40         |                 |
| 11 | 1188.40         | 1189.72         |                 |
| 12 | 1255.56         | 1256.78         |                 |
| 13 | 1324.22         | 1325.36         | $2^{++}(1330 \pm 2)$ |
| 14 | 1394.21         | 1395.27         | $1^{-+}(1400 \pm 20)$ |
| 15 | 1465.36         | 1466.35         | $0^{++}(1474 \pm 20)$ |
| 16 | 1537.54         | 1538.47         |                 |
| 17 | 1610.63         | 1611.51         |                 |
| 18 | 1684.53         | 1685.36         |                 |
| 19 | 1759.15         | 1759.94         | $2^{++}(1740 \pm 7)$ |
| 20 | 1834.42         | 1835.17         |                 |
| 21 | 1910.27         | 1910.98         |                 |
| 22 | 1986.64         | 1987.32         | $4^{++}(1986 \pm 5)$ |
| 23 | 2063.47         | 2064.12         |                 |
| 24 | 2140.73         | 2141.36         |                 |
| 25 | 2218.37         | 2218.97         | $4^{++}(2226 \pm 6)^*$ |
| 26 | 2296.36         | 2296.94         |                 |
| 27 | 2374.66         | 2375.22         |                 |
| 28 | 2453.25         | 2453.79         |                 |
| 29 | 2532.11         | 2532.63         |                 |
| 30 | 2611.21         | 2611.71         |                 |