

Opening Address for Multi-Quark Handrons; Four, Five and More

Good Morning, Mr. Chairman, and Ladies and Gentlemen.

It is my great pleasure to give a welcome greetings on the opening of the YITP workshop ‘Multi-Quark Handrons; Four, Five and More’. On behalf of Yukawa Institute for Theoretical Physics, Kyoto University, I would like to express my cordial welcome to all of you, particularly to the participants who came from abroad.

This workshop is financially supported by the The 21st Century for Center of Excellence (The 21 COE) program, joint program by Yukawa Institute and Physics and Astronomy departments, entitled ‘Center for Diversity and Universality in Physics’.

It is already the year before last that the penta-quark state Θ^+ was found by Nakano san’s group LEPS at Spring-8 and D_{s0} regarded as a tetra-quark was found by BaBar. They are confirmed in succession by many other groups including ITEP(Russia), J-Lab(USA), ELSA(Germany) and BELLE(KEK, Japan). Other penta-quark members were also reported last October.

The existence of those exotic and very STABLE multi-hadron states indicates a unexpectedly rich structure of QCD, and will opens a possibility of new field of QCD hadron chemistry.

Indeed, in the early days of QCD and even before QCD, string model for hadrons have been considered and many exoitc hadron states were predicted and studied. At that time particle physicists were very brave and not afraid of making predictions. For instance, there appeared a review article in a Supplement of *Progress of Theoretical Physics* published in 1978, the authors of the volume discussed a variety of possible hadrons like quark polymers, Kekule-type ring hadrons, fullerene like Carbon60, and even string-junction crystals, and so on.

However, for a long time after that, no exotic states other than qqq and $q\bar{q}$ states have been observed. Even gluball state was not observed. We became quiet and tamed. It became difficult to predict new things.

Now, fortunetely, new way of existence of quarks has been found, and windows for the new world has been opened. We should be again brave and imaginative enough to make new field of physics.

Remember that once Gell-Mann said to some-one “Your work is not crazy enough to get a Nobel Prize”.

I conclude my address by wishing to all of you a very fruitful discussions and collaborations in this workshop and happy and enjoyable stay in this ancient capital of Japan.

Thank you.

Feb. 17, 2004
Taichiro Kugo