

THE MASS OF $CCU(1/2^+)$ BY



SONIA FLECK AND JEAN-MARC RICHARD

ANDRÉ MARTIN, CERN

1981 I PROPOSED A NAÏVE POTENTIAL MODEL TO CALCULATE THE MASSES OF MESONS MADE OF "HEAVY" QUARKS, S, C, B, IN SPITE OF SCEPTICISM (VOLOSHIN, RUBINSTEIN) VERY SUCCESSFUL: $B_s, \eta_b, \text{etc...}$

1981 AGAIN: JEAN-MARC RICHARD, USING THE PRESCRIPTION $V(QQ) = 1/2 V(Q\bar{Q})$ CALCULATED THE MASS OF THE S_2^- :

EXPERIMENT 2706.8 MeV

THEORY 2708 MeV

1989 ENCOURAGED BY THIS SUCCESS

SONIA FLECK AND JEAN-MARC RICHARD USE THE SAME POTENTIAL TO CALCULATE THE MASS OF $CCU(1/2^+)$.

INCLUDING HYPERFINE EFFECTS,

THEY GET

3627 MeV (EXP 3621 MeV)

THIS WAS 28 YEARS

AGO

THE FUTURE

(2)

SEE MY TEXT IN ARCHIVES:

archives: 1419.8138 hep-ph 2014
IMMENSE POSSIBILITIES, IN PARTICULAR
THE "CHARMED" DECUPLLET WHERE THE
CHARMED QUARK REPLACES THE
STRANGE QUARK IN GELL-MANN'S
DECUPLLET:

$$\Delta, \Sigma_c^*, \Xi_{cc}^*, CCC = \Omega_{ccc}$$

Ξ_{cc}^* HAS ALREADY BEEN CALCULATED
BY FLECK AND RICHARD IN 1989

$$m(\Xi_{cc}^*) = 3741 \text{ MeV}$$

CCC, DEAR TO BJORKEN, HAS BEEN
CALCULATED BY RICHARD and MYSELF;

$$m(CCC) = 4787 \text{ MeV. (in 1995)}$$

USING THE BORN-OPPENHEIMER
APPROXIMATION FLECK AND RICHARD
PLAN TO CALCULATE THE EXCITED
STATES OF Ξ_{cc} .

NATURALLY ONE CAN ALSO HOPE
TO SEE BARYONS CONTAINING b QUARKS.

AND WHAT ABOUT t quarks?

AMONG 2 MILLION TOPS, 500 HAVE A LIFE

WHICH IS 10 TIMES THE LIFETIME