Seminar in honor of Prof. Sir T.S. Virdee 14 October 2022 The Kohn Centre, the Royal Society.

Talk given by Jos Engelen, Professor emeritus University of Amsterdam / Nikhef

Writeup: www.nikhef/~h02/talk.pdf

### February 1979

Soft strong interaction physics using bubble chambers, the latter years

SIGMA HYPERON PRODUCTION IN A TRIGGERED BUBBLE CHAMBER

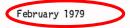
> SIGMA HYPERON PRODUCTION IN A TRIGGERED BUBBLE CHAMBER

> > by

Tejinder Singh Virdee

A thesis submitted for the degree of Doctor of Philosophy of the University of London

Department of Physics Imperial College London SW7



MULTICHANNEL ANALYSIS OF HIGH STATISTICS DATA ON THE REACTION  $K^{-}p \rightarrow \overline{K}^{0} \pi^{-}p$  AT 4.2 GeV/c

#### PROEFSCHRIFT

TER VERKRIJGING VAN DE GRAAD VAN DOCTOR IN DE WISKUNDE EN NATUURWETENSCHAPPEN AAN DE KATHOLIEKE UNIVERSITEIT TE NIJMEGEN, OP GEZAG VAN DE RECTOR MAGNIFICUS, PROF. DR. P. G. A. B. WIJDEVELD, VOLGENS BESLUIT VAN HET COLLEGE VAN DECANEN IN HET OPENBAAR TE VERDEDIGEN OP VRIJDAG 2 FEBRUARI 1979

DES NAMIDDAGS TE 2 OOK PRECIES

door

JOSEPH JOHANNUS ENGELEN geboren te Maasniel

Druk: Krips Repro, Meppel

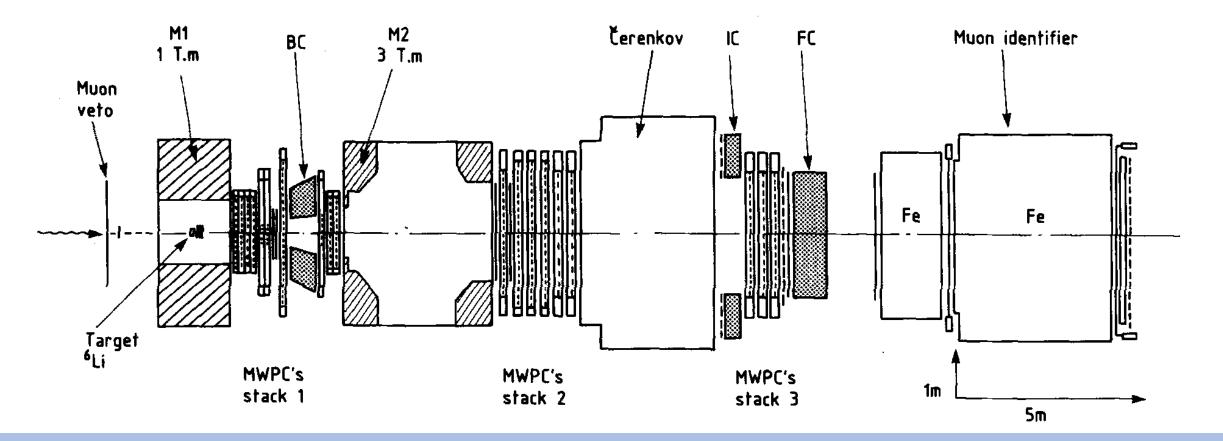
## NA14: 1979 - 1985 (NA14/2)

## Hard scattering of real photons <90 GeV>

<sup>6</sup>Li isoscalar target







NA14 spectrometer. Two dipoles, three e.m. calorimeters, Cerenkov, PWC's, muon filter

### Learning how to drive

### La `quatrelle' Renault 4L



### Learning how to race

Jongens waren we – maar aardige jongens (Nescio in 'Titaantjes' (1915)

'Boys we were – but nice boys'

MAZ 3580

PHYSICS LETTERS

14 March 1985

### MEASUREMENT OF DEEP INELASTIC COMPTON SCATTERING **OF HIGH ENERGY PHOTONS**

NA 14 Collaboration

Volume 152B, number 5,6

 $\gamma q \rightarrow \gamma q$ 

Written by TSV

### Sensitive to 4th power of quark charge

The first NA14 paper.

HO perturbative QCD calculations of inclusive  $\gamma$  signal

P. ASTBURY<sup>c</sup>, E. AUGÉ<sup>d</sup>, R. BARATE<sup>b</sup>, P. BAREYRE<sup>g</sup>, P. BENKHEIRI<sup>e</sup>, D. BLOCH<sup>i</sup>, P. BONAMY <sup>g</sup>, P. BORGEAUD <sup>g</sup>, B. BOUQUET <sup>d</sup>, J.M. BROM <sup>1</sup>, J.M. BRUNET <sup>f</sup>, H. BURMEISTER <sup>b</sup>, M. BURTCHELL<sup>c</sup>, S. COSTA RAMOS<sup>c</sup>, F. COUCHOT<sup>d</sup>, B. D'ALMAGNE<sup>d</sup>, M. DAVID<sup>g</sup>, A. DE BELLEFON<sup>f</sup>, A. DE LESQUENS<sup>8</sup>, P. DELLO RUSSO<sup>1,1</sup>, A. DUANE<sup>c</sup>, J.P. ENGEL<sup>1</sup>, J. ENGELEN<sup>b</sup>, A. FERRER<sup>d</sup>, T.A. FILIPPAS<sup>a</sup>, E. FOKITIS<sup>a</sup>, P. FRENKIEL<sup>f</sup>, E.N. GAZIS<sup>a</sup>, J. GIOMATARIS<sup>a</sup>, M. GORSKI<sup>k</sup>, P. GREGORY<sup>c</sup>, W. GURYN<sup>d,2</sup>, J.L. GUYONNET<sup>i</sup>, T. HOFMOKL<sup>j</sup>, A. JACHOLKOWSKA<sup>j</sup>, E.C. KATSOUFIS<sup>a</sup>, J. KENT<sup>f</sup>, P. KYBERD<sup>c,3</sup>, B. LEFIEVRE<sup>f</sup>, R. LEGENDRE<sup>g</sup>, Y. LEMOIGNE<sup>g</sup>, K. MAESHIMA<sup>b</sup>, T. MARSHALL<sup>g,4</sup>, J.G. McEWEN<sup>h</sup>, J. MORRIS<sup>c,5</sup>, P. MOUZOURAKIS<sup>d,6</sup>, R. NAMJOSHI<sup>c,7</sup>, B. NANDI<sup>c,8</sup>, Ph. NOON<sup>c</sup>, S. ORENSTEIN<sup>f,9</sup>, T. PAPADOPOULOU<sup>a</sup>, J.B.M. PATTISON<sup>b</sup>, P. PETROFF<sup>d</sup>, D. POUTOT<sup>f</sup>, P.G. RANCOITA<sup>g,10</sup> F. RICHARD<sup>d</sup>, P. ROUDEAU<sup>d</sup>, A. ROUGE<sup>e</sup>, M. SCHAEFFER<sup>i</sup>, Ch. SEEZ<sup>c</sup>, H. SHOOSHTARI<sup>h</sup> I. SIOTIS<sup>c</sup>, J. SIX<sup>d</sup>, Ch. TRAKKAS<sup>a</sup>, D. TREILLE<sup>b</sup>, G. TRISTRAM<sup>f</sup>, L.V. VAN ROSSUM<sup>g</sup>, G. VILLET<sup>g</sup>, T.S. VIRDEE<sup>c</sup>, A. VOLTE<sup>f</sup>, D.M. WEBSDALE<sup>c</sup>, J. WEST<sup>c,11</sup>M. WINTER<sup>b,12</sup>, W. WOJCIK <sup>b,13</sup>, G. WORMSER <sup>d</sup>, J.P. WUTHRICK <sup>e</sup> and Y. ZOLNIEROWSKI <sup>g</sup> <sup>a</sup> National Technical University, Athens, Greece <sup>b</sup> CERN, Geneva, Switzerland <sup>c</sup> Imperial College, London UK d Linear Accelerator Laboratory (LAL), Orsay, France <sup>e</sup> Ecole Polytechnique LPNHE, Palaiseau, France f Collège de France, Paris, France <sup>g</sup> DPHPE, Saclay, France h University of Southampton, Southampton, UK <sup>1</sup>CRN et Université Louis Pasteur, Strasbourg, France J Institute of Experimental Physics, University of Warsaw, Warsaw, Poland k Institute for Nuclear Studies, Warsaw, Poland

Received 5 January 1985

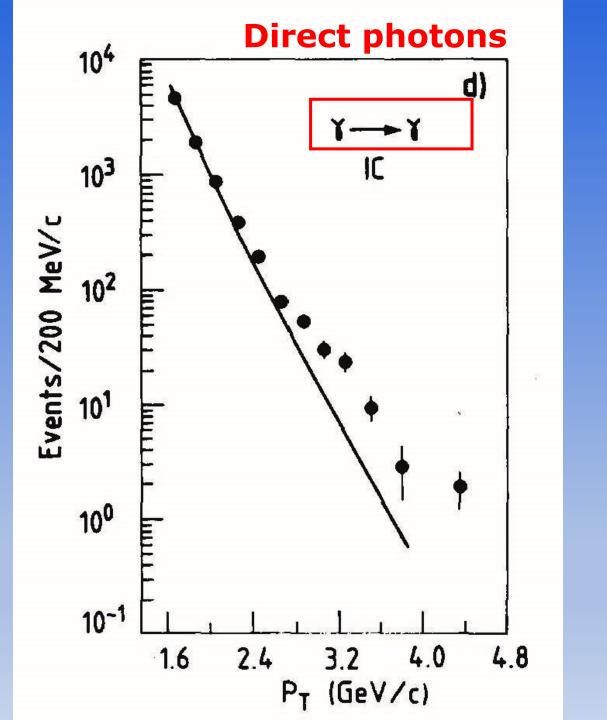
We present the first results on inclusive photo-production of prompt photons at high transverse momenta. The data were taken in an open spectrometer at CERN using a high intensity photon beam with energy between 50 and 150 GeV. After subtracting the yield of photons from indirect sources, a clear excess is observed for transverse momenta above 2.5 GeV/c. Deep inelastic Compton scattering with appropriate QCD corrections account for this excess. The data disfavour the gauge integer charge quark models so far proposed.

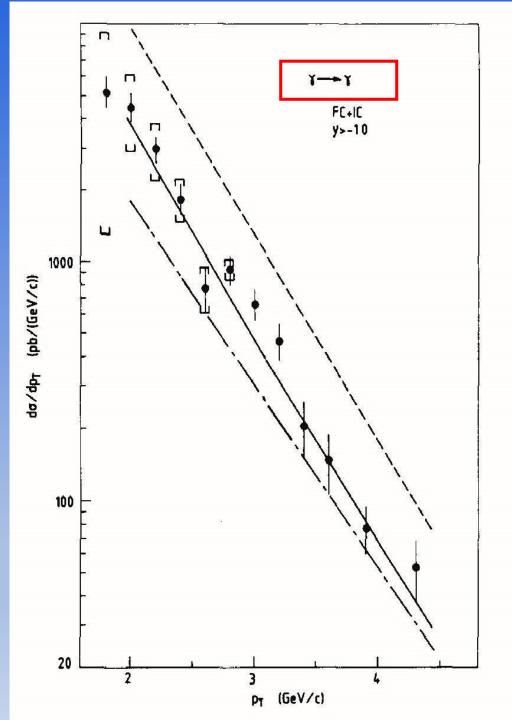
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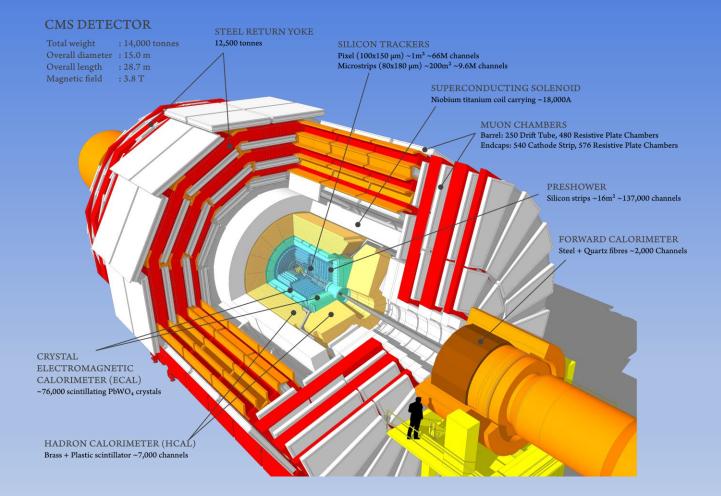


# > 1985: UA1 + R&D (warm liquid calorimetry), PbWO4, $H \rightarrow 2$ gamma, CMS

### Important workshops: Aachen 1990 Evian 1992

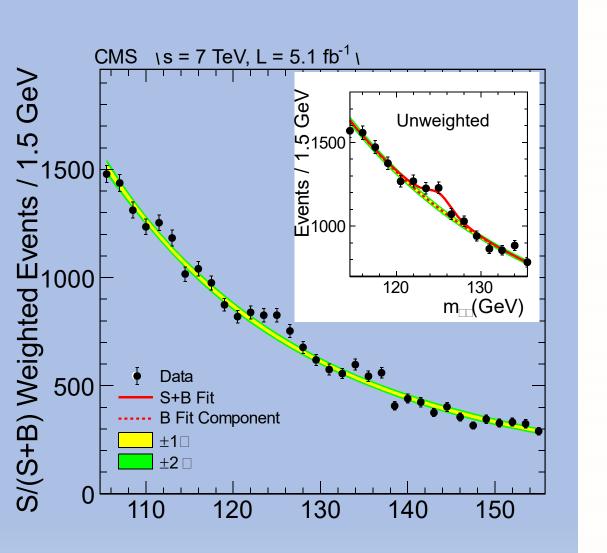
### LHCC < - - > CMS CERN management < - - > CMS Resources Review Boards < - - > CMS

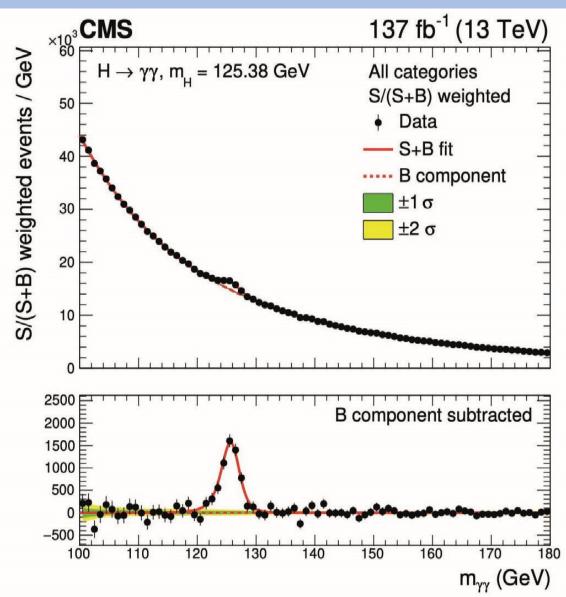
# The Compact Muon Solenoid



Discovery – 2012:

### 2021, 25 x statistics:





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Kohn Centre, the Royal Society



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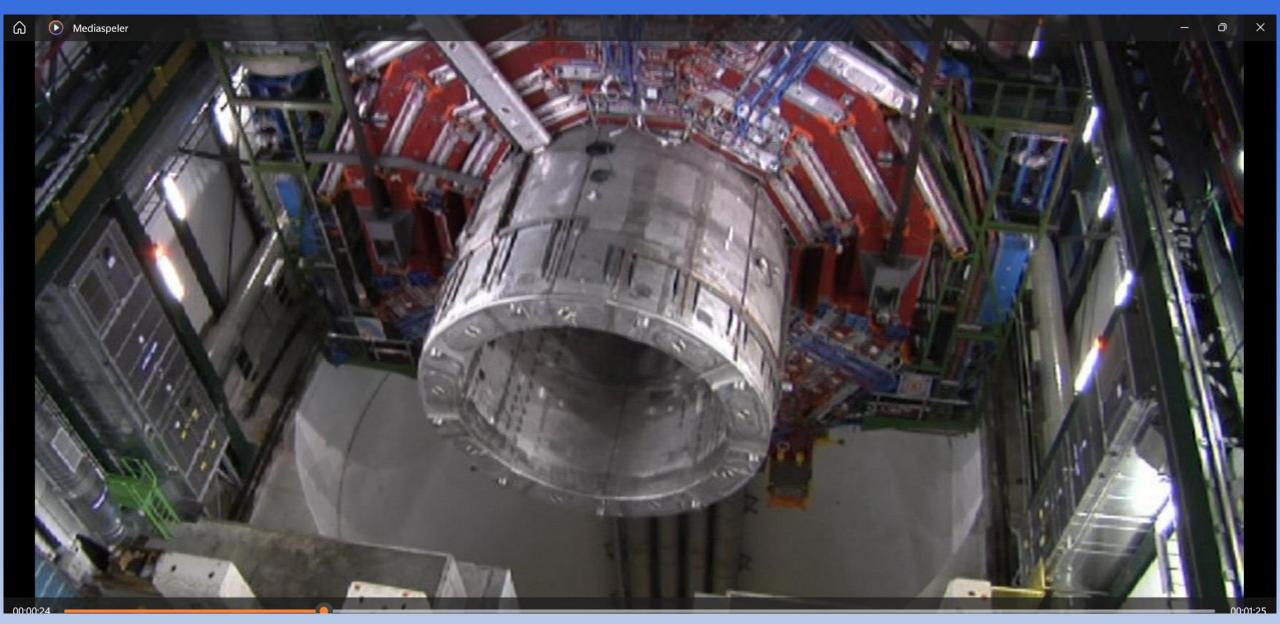
Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment

Volume 385, Issue 3, 1 February 1997, Pages 425-434



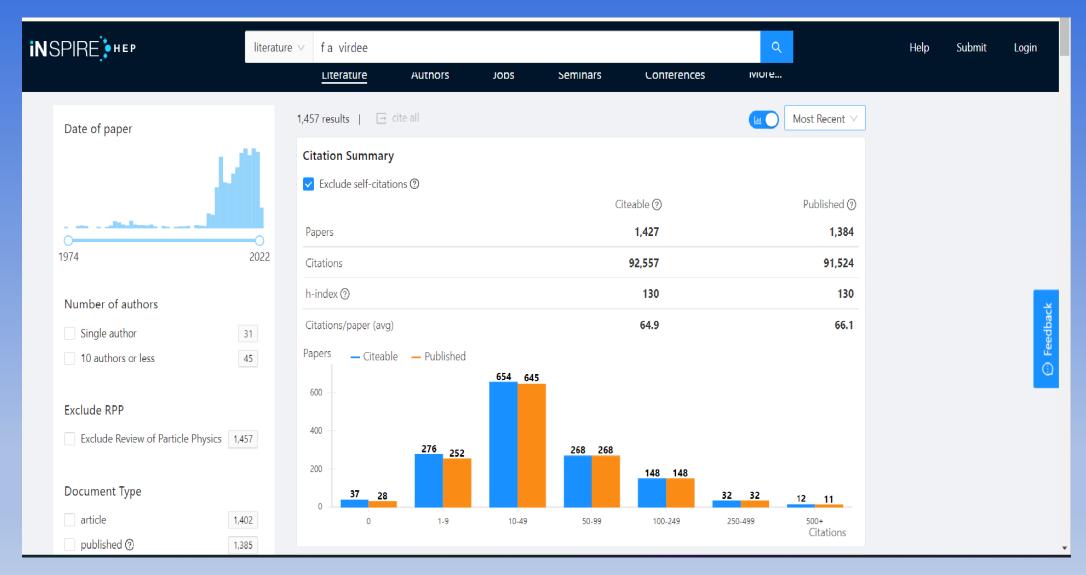
## Studies of lead tungstate crystal matrices in high energy beams for the CMS electromagnetic calorimeter at the LHC

G Alexeev <sup>o</sup>, E Auffray <sup>e</sup>, P Baillon <sup>e</sup>, D Barney <sup>e</sup>, G Bassompierre <sup>b</sup>, E Bateman <sup>d</sup>, K.W Bell <sup>d</sup>, Y Benhammou <sup>s</sup>, P Bloch <sup>e</sup>, D Bomestar <sup>r</sup>, B Borgia <sup>q</sup>, J Bourotte <sup>1</sup>, S Burge <sup>d</sup>, W Cameron <sup>h</sup>, R Chipaux <sup>f</sup>, D Cockerill <sup>d</sup>, J Connolly <sup>d</sup>, I Dafinei <sup>e</sup>, <sup>1</sup>, P Denes <sup>p</sup>, P Depasse <sup>s</sup>, K Deiters <sup>t</sup>, L Dobrzynski <sup>1</sup>, H El Mamouni <sup>s</sup>, J.L Faure <sup>f</sup>, M Felcini <sup>u</sup>, M Finger <sup>n</sup>, T Flügel <sup>t</sup>, F Gautheron <sup>e</sup>, A Givernaud <sup>f</sup>, S Gninenko <sup>k</sup>, N Godinovic <sup>r</sup>, D.J Graham <sup>h</sup>, J.P Guillaud <sup>b</sup>, E Guschin <sup>k</sup>, M Haguenauer <sup>1</sup>, H Hillemanns <sup>a</sup>, H Hofer <sup>u</sup>, B Ille <sup>s</sup>, S Jaaskelainen <sup>e</sup>, V Katchanov <sup>o</sup>, B Kennedy <sup>d</sup>, T Kirn <sup>a</sup>, M Korzhik <sup>j</sup>, K Lassila-Perini <sup>u</sup>, M Lebeau <sup>e</sup>, P Lebrun <sup>s</sup>, P Lecoq <sup>e</sup>, G Lecoeur <sup>e</sup>, P Lecomte <sup>u</sup>, E Leonardi <sup>q</sup>, E Locci <sup>f</sup>, R Loos <sup>e</sup>, D Ma <sup>m</sup>, F Martin <sup>s</sup>, J.P Mendiburu <sup>b</sup>, Y Musienko <sup>k</sup>, P Nedelec <sup>b</sup>, F Nessi-Tedaldi <sup>u</sup>, D Newbold <sup>c</sup>, H Newman <sup>m</sup>, M Oukhanov <sup>o</sup>, L Pacciani <sup>q</sup>, J.P Peigneux <sup>b</sup>, S Pirro <sup>q</sup>, S Popov <sup>k</sup>, I Puljak <sup>r</sup>, C Purves <sup>c</sup>, D Renker <sup>t</sup>, F Rondeaux <sup>f</sup>, E Rosso <sup>e</sup>, R Rusack <sup>i</sup>, H Rykaczewski <sup>u</sup>, D Schmitz <sup>a</sup>, M Schneegans <sup>b</sup>, J Schwenke <sup>a</sup>, C Seez <sup>A,h</sup> <sup>IM</sup>, I Semeniouk <sup>k</sup>, P Shagin <sup>o</sup>, S Shevchenko <sup>m</sup>, X Shi <sup>g</sup>, D Sillou <sup>b</sup>, D Simohand <sup>s</sup>, A Singovsky <sup>o</sup>, I Soric <sup>r</sup>, B Smith <sup>d</sup>, R Stephenson <sup>d</sup>, P Verrecchia <sup>f</sup>, J.P Vialle <sup>b</sup>, T.S Virdee <sup>e, 2</sup>, R.Y Zhu <sup>m</sup>





### 'find author virdee' (= Jim + Jas)



### Happy birthday Jim!

### And:

'I know you are not quite there yet, but even during partial retirement, enjoy the freedom it brings, together with your loved ones, together with your friends!'

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