

C3F2

Collect, Classify & Compute Form Factors

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Université d'Orsay

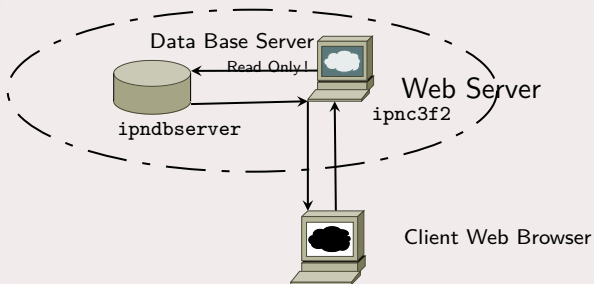


4 octobre 2012

Collect, Classify & Compute Form Factors

- 1 Data concerning Nucleon Form Factors in different regions are scattered along a number of publications. . .
- 2 . . .we gathered them in a database
- 3 . . .and will soon open a web access to browse them
- 4 . . .to display them
- 5 . . .and eventually to fit them

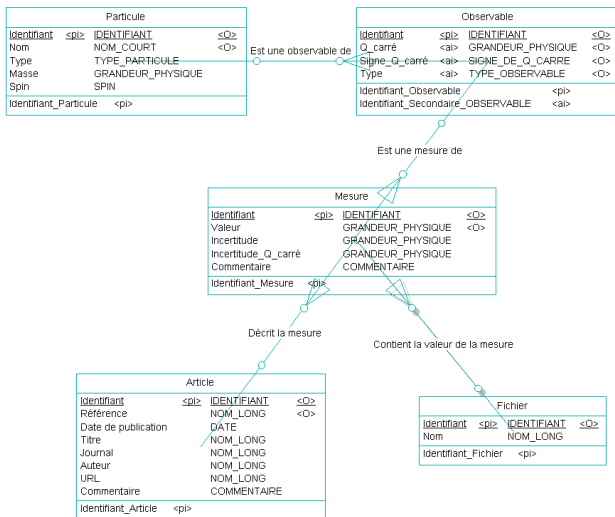
Map of the Information System



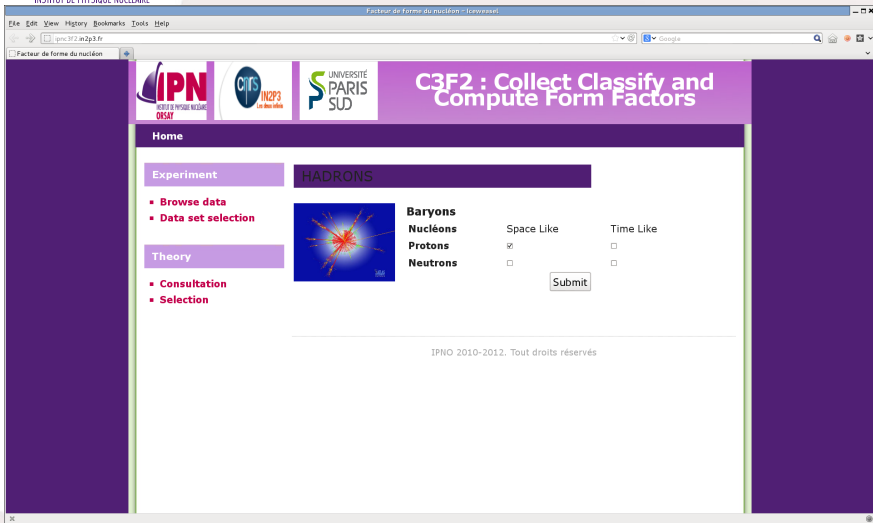
Technical Overview

- the data (article reference, form factor measurement...)
- ...where collected in text files
- ...have been integrated with an automated procedure
- ...are now kept in a database
(PostgreSQL on `ipndbserver.in2p3.fr`)
- the site is run by an
Apache Web server on `ipnc3f2.in2p3.fr`
- ...mixing PHP, C++/CGI & Root libraries
- site sources are kept under versionning system
(Subversion on `ipnvcs.in2p3.fr`)
- developers, maintainers and registered users can issue tickets (bug report, wanted features) on `forge.in2p3.fr`

Entity–relationship model



Example results (1)



Facteur de forme du nucléon - [cawassal]

gnc3f2.in2p3.fr

Facteur de forme du nucléon

IPN
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ORSAY

CIFS
INZP3
LES HAUTS SAUVES

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PARIS
SUD

C3F2 : Collect Classify and Compute Form Factors

Home

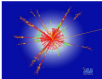
Experiment

HADRONS

- Browse data
- Data set selection

Theory

- Consultation
- Selection



Baryons

Nucléons Space Like Time Like

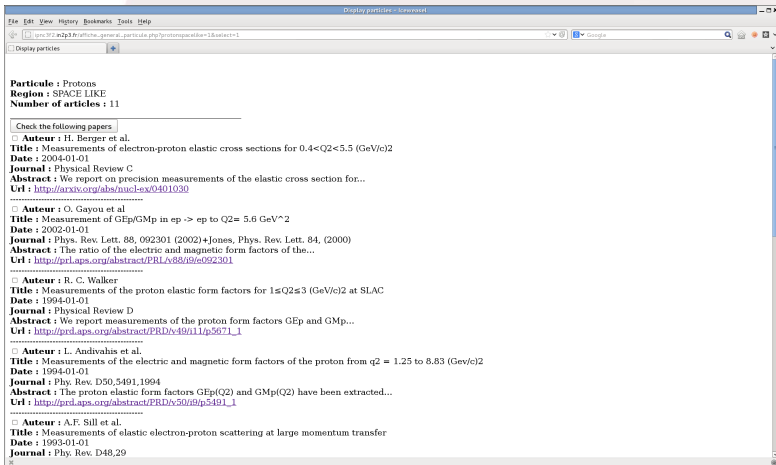
Protons

Neutrons

Submit

IPNO 2010-2012. Tout droits réservés

Example results (2)



Display particles - Firefox

File Edit View History Bookmarks Tools Help

http://prl.apc.fr/raffiche_generat...particule.php?protonspace-like=1&select=1

Display particles

Particule : Protons
Region : SPACE LIKE
Number of articles : 11

Check the following papers

Auteur : H. Berger et al.
Title : Measurements of electron-proton elastic cross sections for $0.4 < Q^2 < 5.5$ (GeV/c)²
Date : 2004-01-01
Journal : Physical Review C
Abstract : We report on precision measurements of the elastic cross section for...
Url : <http://arxiv.org/abs/nucl-ex/0401030>

Auteur : O. Gayou et al
Title : Measurement of G_{Ep}/G_{Mp} in ep → ep to Q² = 5.6 GeV²
Date : 2002-01-01
Journal : Phys. Rev. Lett. 88, 092301 (2002)+Jones, Phys. Rev. Lett. 84, (2000)
Abstract : The ratio of the electric and magnetic form factors of the...
Url : <http://prl.aps.org/abstract/PRL/v88/i9/e092301>

Auteur : R. C. Walker
Title : Measurements of the proton elastic form factors for $1 \leq Q^2 \leq 3$ (GeV/c)² at SLAC
Date : 1994-01-01
Journal : Physical Review D
Abstract : We report measurements of the proton form factors G_{Ep} and G_{Mp}...
Url : http://prd.aps.org/abstract/PRD/v49/i11/p5671_1

Auteur : L. Andivahis et al.
Title : Measurements of the electric and magnetic form factors of the proton from $q^2 = 1.25$ to 8.83 (GeV/c)²
Date : 1994-01-01
Journal : Phy. Rev. D50,5491,1994
Abstract : The proton elastic form factors G_{Ep}(Q²) and G_{Mp}(Q²) have been extracted...
Url : http://prd.aps.org/abstract/PRD/v50/i6/p5491_1

Auteur : A.F. Sill et al.
Title : Measurements of elastic electron-proton scattering at large momentum transfer
Date : 1993-01-01
Journal : Phy. Rev. D48,29

Example results (3a)

CF3F2 - [cwmrnet]

File Edit View History Bookmarks Tools Help

http://ipncl.apc.sorci.fr/cgi-bin/cf3f2.cgi?id=3,1,2,30&particule=Proton®ion=SPACE LINE

CF3F2

Title : Measurements of the electric and magnetic form factors of the proton from $q_2 = 1.25$ to 8.83 (GeV/c)²

Author : L. Andivahis et al.
Date : 1994-01-01
Journal : Phys. Rev. D50,5491,1994
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Url : http://pdcl.apc.sorci.fr/abstract/PFD/v49/i1/p5671_1

Title : Measurements of elastic electron-proton scattering at large momentum transfer

Author : A. F. Sill et al.
Date : 1993-01-01
Journal : Phys. Rev. D48,29
Abstract : Measurements of the forward-angle differential cross section for elastic electron-proton scattering...
Url : http://pdcl.apc.sorci.fr/abstract/PFD/v48/i1/p29_1

Particle under study : Proton
Observed Type : MAGNETIC

q ² [(GeV/c) ²]	incertitude sur q ² [Δ(q ²)]	Valeur	incertitude sur la Valeur
31.2	0	0.72	0.067
26.99	0	0.708	0.044
23.24	0	0.729	0.034
19.47	0	0.731	0.03
15.72	0	0.819	0.027
11.96	0	0.872	0.021
9.626	0	0.892	0.021
8.83	0	0.916	0.023
7.3	0	0.948	0.022
7	0	0.959	0.016
6	0	0.987	0.012
5.027	0	1.008	0.021

Example results (3c)

CF3F2 - [cwmv001]

File Edit View History Bookmarks Tools Help

gpc3f2.m2p3.fr/cgi-bin/3f2.cgi?d=4.5&particle=Neutrons®ion=SPACE_LIKE

CF3F2

Author : A. Long et al.
 Particle under study : Neutronium
 Date : 1995-01-01
 Journal : Physical Review Letters
 Abstract : Calculated ϵ - δ cross sections have been measured at forward and backward...
 Url : <http://inspire.hepforge.org/record/110077/mpeg46707018>
 Commentary : 4 measurements: δ_{AC} , 1.75×10^{-4} , $1.06/0.02$, Q_2 , ϵ_2 , μ_2 , σ_2 , μ_2 , σ_2 , μ_2 , σ_2 , μ_2 , σ_2 .
 Reference File : Long Phys Rev Lett 70:8,1998
 Ref : Phys. Rev. Lett. 70 (1993) 718

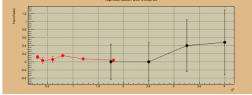
Particle under study : Neutronium
 Observed Type : ELASTIC

q^2 [GeV $^2/c^4$]	incertitude sur q^2 [MeV $^2/c^4$]	Valeur	incertitude sur la Valeur
4	0	0.48	0.08
0.28	0	0.4	0.04
2.6	0	0.47	
1.8	0	0.041	0.008
3.78	0	0	0.44
1.2	0	0.072	0.008
0.8	0	0.148	0.016
0.6	0	0.063	0.009
0.4	0	0.002	0.072
0.3	0	0.118	0.028

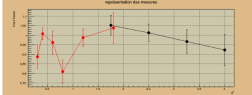
Particle under study : Neutronium
 Observed Type : MAGNETIC

q^2 [GeV $^2/c^4$]	incertitude sur q^2 [MeV $^2/c^4$]	Valeur	incertitude sur la Valeur
4	0	0.903	0.081
0.28	0	0.867	0.061
2.6	0	1.014	0.046
1.8	0	1.029	0.06
3.78	0	1.082	0.082
1.2	0	0.867	0.047
0.8	0	0.809	0.061
0.6	0	0.940	0.061
0.4	0	1.008	0.008
0.3	0	0.888	0.082

Représentation des Données



Représentation des Données



Find: H. Berger et al. < Previous > Next Highlight all Match case Reached end of page, continued from top

Conclusion

C3F2 allows us to browse and visualize Nucleon Form Factors both in Space-like and Time-Like region, for various Q^2

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Thanks for your attention

questions ?

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