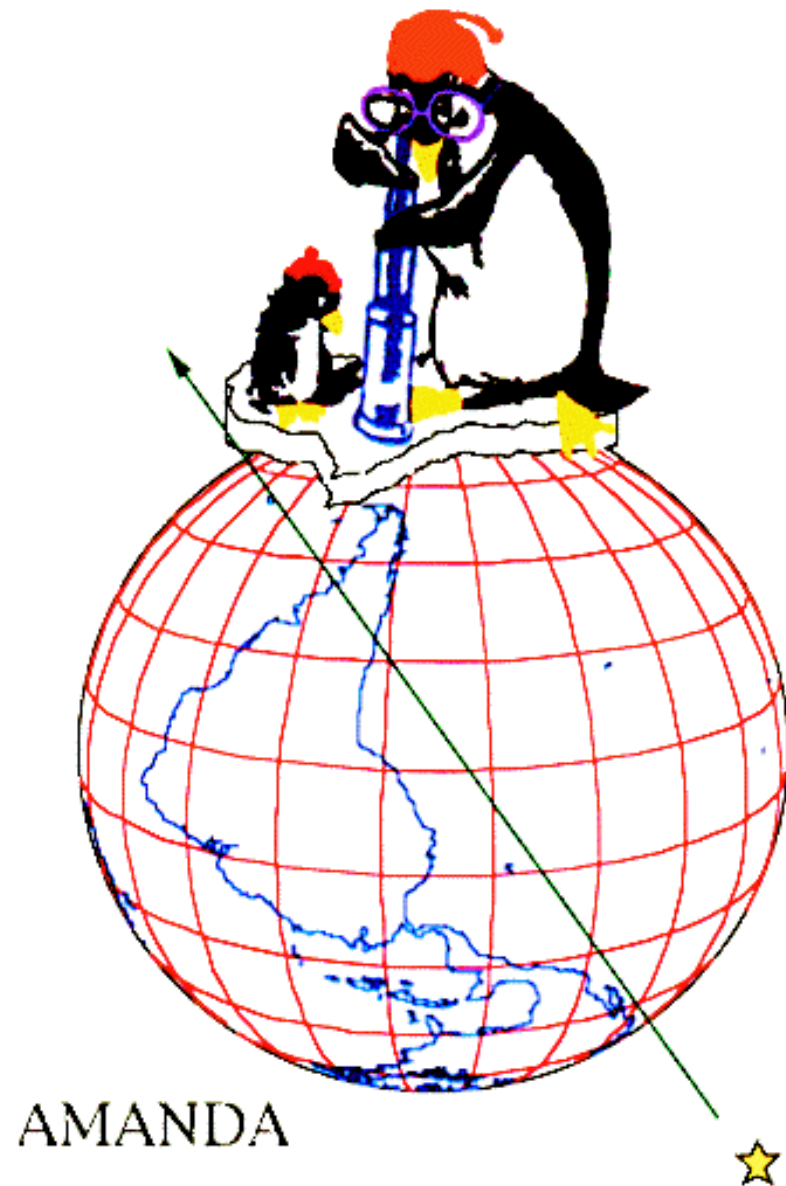


David Cline at Wisconsin

# 1992 Cline meeting at UCLA

<b>The Economist</b> FEBRUARY 29TH-MARCH 6TH 1992	FLAWED SUPERFUND	pages 18 and 80
	CALIFORNIA'S WOMEN	page 32
	MULTI-MEDIA MADNESS	pages 17 and 73
	ANTARCTIC SCIENCE	pages 91-93



# Cline, David Bruce

Profile Name

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2016-02-18 06:55:02

## Personal Details (HepNames)

**Name** David B. Cline

**Current Institution** UCLA

**Links** <http://www.pa.ucla.edu/content...>

**Fields** ASTRO-PH

**Experiments** CERN-LHC-CMS  
XENON100  
DUNE

**Identifiers** BAI: D.Cline.1  
INSPIRE: INSPIRE-00073796

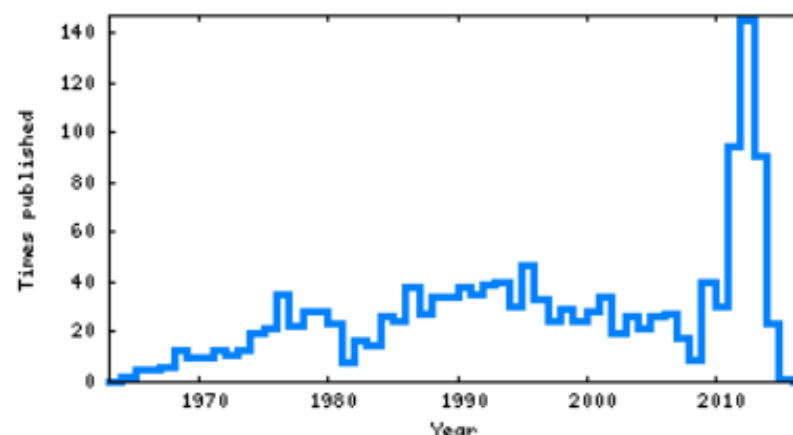
Period	Rank	Institution
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	SENIOR	UCLA
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1965	PHD	Wisconsin U., Madison
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## Publications Datasets External

## Publication Graph



Number of papers analyzed:	1040	762
Number of citations:	71507	67026
Citations per paper (average):	68.8	88.0
hHEP index [?]	130	124
Breakdown of papers by citations:		
	Citeable papers	Published only
Renowned papers (500+)	15	13
Famous papers (250-499)	36	34
Very well-known papers (100-249)	123	115
Well-known papers (50-99)	171	167
Known papers (10-49)	313	275
Less known papers (1-9)	275	140
Unknown papers (0)	107	18

## Subject Categories

Experiment-HEP (582)  
 Instrumentation (204)  
 Accelerators (196)  
 Astrophysics (154)  
 Experiment-Nucl (112)  
 Phenomenology-HEP (82)  
 Theory-Nucl (18)  
 Gravitation and Cosmology (10)  
 General Physics (5)  
 Computing (2)  
[more](#)

## Frequent Keywords

CMS (347)  
 experimental results (323)  
 CERN LHC Coll (317)  
 7000 GeV-cms (211)  
 p p: scattering (189)  
 background (86)  
 final state (83)  
 p p: interaction (70)  
 UA1 (70)  
 ANTI-P P: COLLIDING BEAMS (68)  
[more](#)

## Affiliations

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UCLA (836)

Wisconsin U., Madison (266)

Rochester U. (58)

Fermilab (46)

CERN (32)


Harvard U. (22)

Pennsylvania U. (11)

Purdue U. (9)

SLAC (7)

Brookhaven (5)

 more

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# Phenomenology in Madison: theory and experiment

## Experimental check of some SU(6) cross-section equalities

T. Binford, D. Cline, M Olsson (Wisconsin U., Madison). Apr 1965. 3 pp.

Published in **Phys.Rev.Lett. 14 (1965) 715-717**

## Fermion Regge-Pole Model for the Structure of Pion-Nucleon Elastic Scattering in the Backward Hemisphere

V. Barger, D. Cline (Wisconsin U., Madison). Mar 25, 1967. 18 pp.

Published in **Phys.Rev. 155 (1967) 1792-1810**

## Hadron collisions at high transverse momentum

D. Cline, F. Halzen, M. Waldrop (Wisconsin U., Madison). 1973. 10 pp.

Published in **Nucl.Phys. B55 (1973) 157-166**

## High transverse momentum secondaries and rising total cross-sections in cosmic ray interactions

D. Cline, F. Halzen, J. Luthé (Wisconsin U., Madison). May 1973. 4 pp.

## EVIDENCE FOR A NARROW, HIGH SPIN BOSON STATE WITH MASS 1925 MeV

D. Cline, J. English, D.D. Reeder (Wisconsin U., Madison). 1970. 13 pp.

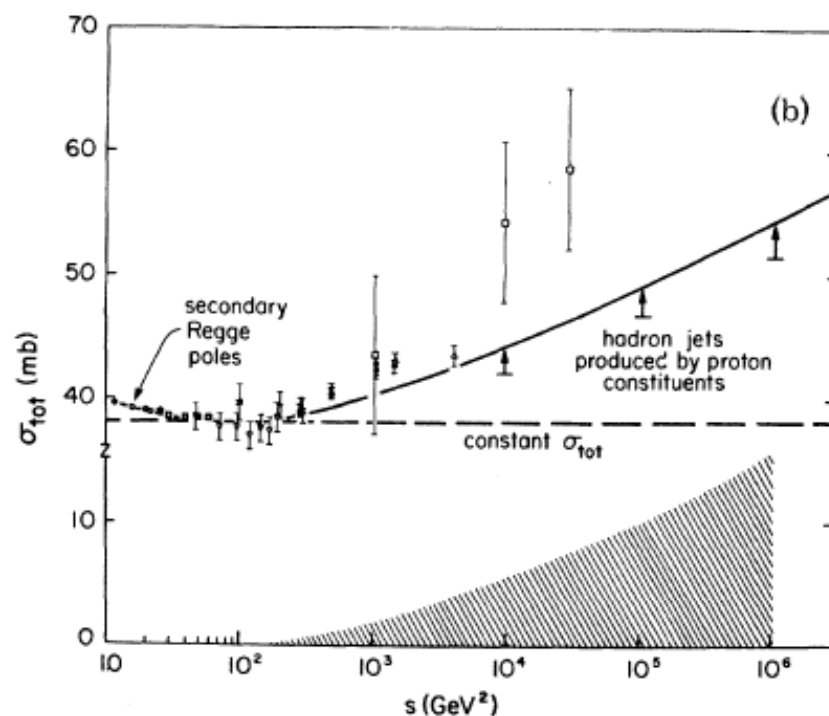
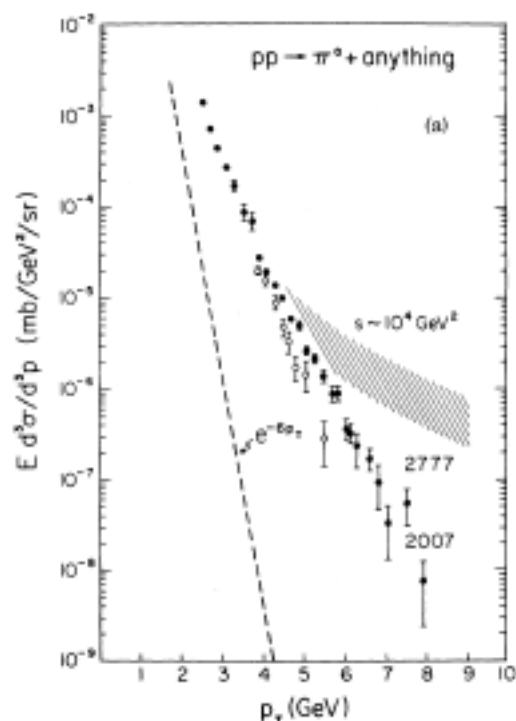
# High-Transverse-Momentum Secondaries and Rising Total Cross Sections in Cosmic-Ray Interactions\*

D. Cline, F. Halzen, and J. Luthe

*Department of Physics, University of Wisconsin, Madison, Wisconsin 53706*

(Received 11 May 1973)

We draw attention to hadron collisions from cosmic-ray data showing evidence for high-transverse-momentum secondaries in substantial excess of the celebrated exponential cut-off, analogous to recent observations at the CERN intersecting storage rings. The data support a composite (parton/quark) picture of the proton in which deep inelastic proton collisions at high energy ( $\sim 10^3$  GeV) produce constituents, observed through hadron jets. This phenomenon is possibly connected to the rise of the total cross section observed in the same range of energy.



For example in his paper (Cabibbo-Rocca, Cern preprint 1974), we find the following formulae for the fragmentation probabilities (integrated over the transverse momenta)

$$\frac{dP_{\gamma \rightarrow e^+ e^-}(z)}{dz} = \frac{\alpha}{\pi} (1 + (1 - 2z)^2) \log(E/m_e),$$

$$\frac{dP_{e \rightarrow e \gamma}(z)}{dz} = \frac{\alpha}{\pi} \frac{1 + (1 - z)^2}{z} \log(E/m_e).$$

Our task (with Guido) was easy. We had to change notation ( $e \rightarrow q$ ,  $\gamma \rightarrow g$ ), to compute the function

$$\frac{dP_{g \rightarrow g g}(z)}{dz},$$

to add polarization and group factors. At the end the final equations were checked against the known results from field theory.



# E1A at Fermilab and the high-y anomaly

## NAL neutrino proposal

D. Cline, D.D. Reeder (Wisconsin U., Madison), E.W. Beier, A.K. Mann (Pennsylvania U.), J. Pilcher, C. Rubbia (Harvard U.). Jun 1970. 140 pp.

FERMILAB-PROPOSAL-0001-A

## New Features of Neutrino Physics as Observed in Fermilab Exp. 1A

A.C. Benvenuti (Wisconsin U., Madison & Harvard U. & Pennsylvania U.) *et al.*. May 1977. 25 pp.

Published in In **\*Aachen 1976, Proceedings, International Neutrino Conference\***, **Braunschweig 1977, 11-21**

ERDA-881-UW-561

## Observation of mu- e+ K0(s) Events Produced by a Neutrino Beam

J. von Krogh (Wisconsin U., Madison) *et al.*. Jan 1976. 12 pp.

Published in **Phys.Rev.Lett. 36 (1976) 710**

Print-76-0073 (WISCONSIN)

## Neutrino Scattering and New Particle Production

D. Cline, W.F. Fry (Wisconsin U., Madison). 1977. 70 pp.

Published in **Ann.Rev.Nucl.Part.Sci. 27 (1977) 209-278**

DOI: [10.1146/annurev.ns.27.120177.001233](https://doi.org/10.1146/annurev.ns.27.120177.001233)

Further

A. Benvenuti, D

Department Of I  
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The  
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Earlier, we pre  
elastic  $\nu_\mu$ - and  $\bar{\nu}_\mu$   
single final-state  
understood on the  
semileptonic weak  
The  $\bar{\nu}$  data showed  
the expected inela

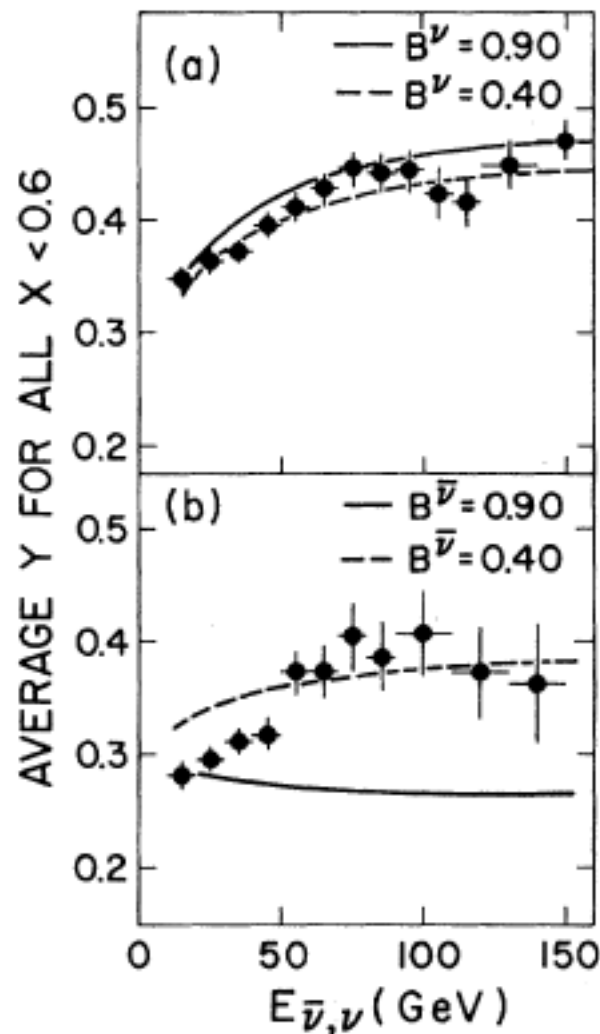


FIG. 4. First moments of the  $y$  distributions versus energy for (a)  $\nu$  events and (b)  $\bar{\nu}$  events.

ng\*

, C. Rubbia,

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Bjorken scal-  
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on by  $\bar{\nu}$ ; it pro-  
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nger evidence

EPS - HEPP Prize, 27 July 2015

Recollections  
from the early days of  
QCD in the 70's

Guido Altarelli  
Roma Tre/CERN

The theory of scaling violations, in Mellin moment terms,  
was applied to total neutrino cross sections

Volume 63B, number 2

PHYSICS LETTERS

19 July 1976

## CHARMED QUARKS AND ASYMPTOTIC FREEDOM IN NEUTRINO SCATTERING

G. ALTARELLI, R. PETRONZIO

*Istituto di Fisica, Roma, Italy*

*Istituto Nazionale di Fisica Nucleare, Sezione di Roma, Italy*

and

G. PARISI

*Istituto Nazionale di Fisica Nucleare, Frascati, Italy*

Received 24 March 1976

Asymptotic freedom and charm production are both important ingredients for a theoretical analysis of neutrino cross sections. We study in detail the  $Q^2$  dependence of integrated quantities like cross sections,  $y$ -distributions and  $\langle x \rangle$  values. Deviations from scaling are quite substantial in the present energy range.

This paper contributed to downgrading the “ $y$ -anomaly”  
from a signal of new physics (right-handed charged currents)  
⊕ down to a charm threshold + QCD-logs effect

# Neutral currents with EA1

## Experimental search for weak neutral currents

D.B. Cline (Wisconsin U., Madison). 1967.

Published in In **\*Cline, D.B. (ed.): Weak neutral currents\*** 3.11-3.26

## Observation of Elastic Neutrino and anti-neutrino Scattering and Parity Violation in the Weak Hadronic Neutral Current

L.R. Sulak, D. Cline, A. Entenberg, W. Kozanecki, A.K. Mann, D.D. Reeder, C. Rubbia, J. Strait, H.H. Williams (Harvard U. & Pennsylvania U. & Wisconsin U., Madison). Aug 1976. 39 pp.

Published in In **\*Aachen 1976, Proceedings, International Neutrino Conference\*, Braunschweig 1977, 302-318** PRINT-76-0738 (HARVARD)

## Measurement of the Neutral Current Interactions of High-Energy Neutrinos and anti-neutrinos

P. Wanderer (Wisconsin U., Madison) et al.. Jul 1977. 40 pp.

Published in **Phys.Rev. D17 (1978) 1679**

FERMILAB-PUB-77-116-E, HPWF-77-1

## C. Rubbia on Nobel webpage

I returned again to more orthodox weak interactions a few years later, when together with David Cline and Alfred Mann we proposed a major neutrino experiment at the newly started US laboratory of Fermilab. The operational problems associated with a limping accelerator and a new laboratory made very difficult, albeit impossible for us during the Summer of 1973 to settle definitively the question of the existence of neutral currents in neutrino interactions, when competing with the much more advanced instrumentation of Gargamelle at CERN. Instead, about one year later we could clearly observe the presence of all-muons events in neutrino interactions and to confirm in this way one of the crucial predictions of the GIM mechanism, hinting at the existence of charm, glamorously settled only few months later with the observation of the  $Y/J$  particle.

# top-quark at CDF

## [Proposal to Construct an anti-Proton Source for the Fermilab Accelerator](#)

[D. Cline](#), [P. McIntyre](#), [D.D. Reeder](#), [C. Rubbia](#), [L. Sulak](#), [M.A. Green](#), [E.M. Rowe](#), [W.S. Trzeciak](#), [W. Winter](#) ([Harvard U.](#) & [Wisconsin U., Madison](#)). Jun 1976. 49 pp.

Published in **eConf C7606284 (1976) 022**

FERMILAB-PROPOSAL-0492, NAL-1976-022, RX-745

In the Proceedings of Conference: [C76-06-28.4](#) (Aspen Summer Study 1976,v.1:309)

## [Conceptual Design of a Forward Detector for the anti-Proton - Proton Collider](#)

[G. Bauer](#) (Fermilab & Wisconsin U., Madison & Texas A-M) *et al.*. Aug 1980. 88 pp.

FERMILAB-PUB-80-105, PRINT-80-0631 (FERMILAB), FERMILAB-CDF-NOTE-064

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)

[Fermilab Library Server \(fulltext available\); Link to Fulltext](#)

## [The CDF Forward Muon System](#)

[CDF](#) Collaboration ([K. Byrum](#) ([Wisconsin U., Madison](#)) *et al.*). Jul 1987. 16 pp.

Published in **Nucl.Instrum.Meth. A268 (1988) 46**

FERMILAB-PUB-87-181-E

DOI: 10.1016/0168-9002(88)90592

# W and Z discovery at CERN

## The Search For Intermediate Vector Bosons

D.B. Cline (Wisconsin U., Madison & Fermilab), C. Rubbia, Simon Van Der Meer (CERN & Harvard U.). Mar 1982. 12 pp.

Published in **Sci.Am. 246N3 (1982) 38-49**, **Sci.Am. 246 (1982) 38-49**



and much more...

**Measurement of Anomalous Muon Pair Production in Electron - Positron Annihilations**

U. Camerini (Colorado U. & Pennsylvania U. & Wisconsin U., Madison) *et al.*. May 1978. 20 pp.

Published in **Phys.Rev. D18 (1978) 1-5**

PRINT-77-0824-REV. (COLORADO), PRINT-77-0824 (COLORADO)

**A Decay Mode Independent Search For Baryon Decay Using A Volume Cherenkov Detector**

Harvard-Purdue-Wisconsin Collaboration (J. Blandino (Harvard U. & Purdue U. & Wisconsin U., Madison) *et al.*). Dec 1979. 63 pp.

Print-79-1026 (WISCONSIN)

**Binding Of Monopoles In Matter And Search In Large Quantities Of Old Iron Ore**

David B. Cline (Wisconsin U., Madison). Oct 1982. 30 pp.

PRINT-83-0342 (WISCONSIN), C82-10-14

Invited talk given at Conference: C82-10-14 (Racine Mag.Mono.1982:0245)

**The study of ultrahigh-energy neutrino interactions in DUMAND**

David Cline (Fermilab & Wisconsin U., Madison). Apr 1978. 15 pp.

Published in **AIP Conf.Proc. 52 (1979) 43-57**

COO-088-48

... and conferences...

Proceedings Of The Seminar On Proton Stability Held At The University Of Wisconsin, Dec. 8, 1978

D. Cline (Wisconsin U., Madison). 1979.

Published in **Wisconsin Univ./madison 1979, Nonconsec.Pag**

Proceedings Of The Workshop On The Cooling Of High-energy Beams, Held At The University Of Wisconsin, Madison, November 3-4, 1978

D. Cline (Wisconsin U., Madison). 1979.

Published in **Wisconsin Univ./madison 1979, 95p**

A Search for Nucleon Decay With Multiple Muon Decays

HPW Collaboration (T.J. Phillips (Harvard U. & Wisconsin U., Madison & Purdue U.) *et al.*)

Published in **Phys.Lett. B224 (1989) 348-352**