

Note: citation counts are compiled from the SLAC Spires database.¹

1) S. Kretzer, F.I. Olness, R.J. Scalise, R.S. Thorne, U.K. Yang,
Predictions For Neutrino Structure Functions.
Phys.Rev.D64:033003,2001.

This paper represents an important collaborative effort by a number of diverse groups; I believe the breadth of the collaborators is as impressive as the results of the paper. Here, I represent the ACOT approach, Robert Thorne (Cambridge) represents the TR approach, and Stefan Kretzer (Dortmund/MSU) represents the GRV approach. Un-Ki Yang (U.Chicago) is the lone experimentalist, and represents the CCFR/NuTeV experimental collaboration and their data. This is the first paper that brings all these theoretical viewpoints together, and matches them with the experimental data; as such, this paper will serve as a reference point for future work on Neutrino Structure Functions.

2) Michael Kramer, Fredrick I. Olness, Davison E. Soper,
Treatment Of Heavy Quarks In Deeply Inelastic Scattering.
Phys.Rev.D62:096007,2000.

In 1994 we introduced the ACOT (Aivazis, Collins, Olness, Tung) method for calculating heavy quark production; this approach has been widely adopted, and the original paper is rated as "Famous" (100+ citations). In 2000, we introduced an improvement of this scheme that dramatically simplifies the form of the expressions that enter the calculation. This technique gives us the ability to carry our calculations out to a higher order in the perturbation expansion as compared to previous techniques.

3) H. L. Lai, J. Huston, S. Kuhlmann, J. Morfin, F. Olness, J. F. Owens, J. Pumplin, W. K. Tung
Global QCD Analysis Of Parton Structure of The Nucleon: CTEQ5 Parton Distributions.
Eur.Phys.J.C12:375-392,2000.

This paper is ranked as "Famous" (100+ citations).

In this paper we update the CTEQ parton distribution fits using the most recent data. In particular, we find some surprising results coming from the fixed-target Drell-Yan experiments. This is also one of the earlier efforts to investigate the systematic uncertainties of the parton distributions.

¹Details can be found at: <http://www.slac.stanford.edu/spires/>

Warning: the citation search should be used and interpreted with great care. At present, the source for the citation index in the HEP database is only the preprints/eprints received by the SLAC Library, and not the (unpreprinted) journal articles. Citations to a paper during the months it was circulated as a (non-eprint) preprint may also be lost, because only references to journal articles and e-print papers are indexed. Still, the citation index in HEP (SPIRES-SLAC) is formed from an impressive number of sources. For example, in 1998, the citation lists were collected from almost 14,000 preprints.

4) R.N. Mohapatra, F. Olness, R. Stroynowski, V.L. Teplitz,
Searching For Strongly Interacting Massive Particles (SIMPs).
Phys.Rev.D60:115013,1999.

We investigate limits on SIMPs (Strongly Interacting Massive Particles) based on both cosmological data as well as terrestrial data. In this collaboration, I was the expert on the Fermilab Tevatron data, and evaluated the limits from this source. This paper nicely illustrates the complementarity between Astrophysics and Particle Physics.

5) B.I. Ermolaev, F.I. Olness, A.G. Shuvaev,
Asymptotic High-Energy Behavior Of The Deeply Virtual Compton Scattering Amplitude.
Phys.Rev.D60:034013,1999.

This paper represents my attempt to learn about the Deeply Virtual Compton Scattering (DVCS) process. This subject was of topical interest in the latter part of the '90's, and the best way to learn was to collaborate with two experts in the subject from the Ioffe Institute of St. Petersburg, Russia. I also presented this work at the DIS'98 meeting in Zeuthen, Germany.

6) Fredrick I. Olness, Randall J. Scalise,
Heavy Quark Parton Distributions: Mass Dependent Or Mass Independent Evolution?
Phys.Rev.D57:241-244,1998.

In a 1998 publication, Martin, Roberts, Ryskin, & Stirling (MRRS) claimed that it was essential to include the mass term in the evolution of the quark distribution. In a simple example, we demonstrate both analytically and numerically that this result is false. Our paper proves that the (much simpler) mass independent evolution is theoretically consistent.

7) H.L. Lai, J. Huston, S. Kuhlmann, F. Olness, J. Owens, D. Soper, W.K. Tung, H. Weerts
Improved Parton Distributions From Global Analysis Of Recent DIS & Inclusive Jet Data.
Phys.Rev.D55:1280-1296,1997.

This paper is ranked as "Renowned" (500+ citations).
This paper was also the most cited paper in the hep-ph archive for 1999.²

In 1997 there was great excitement over the High Jet ET distribution produced by the CDF collaboration at Fermilab as it appeared that there may be an indication of composite structure to the fundamental quarks. In this paper, we demonstrate that this apparently anomalous behavior can be explained by adjusting the gluon distribution in the proton; hence the Fermilab data is unable to prove the existence of quark compositeness at this point.

²Details can be found on the web at:

<http://www.slac.stanford.edu/library/topcites/top40.1999.E.hep-ph.2.html>

8) Raymond Brock, John C. Collins, Joey Huston, Stephen Kuhlmann, Sanjib Mishra, Jorge G. Morfin, Fredrick Olness, Joseph Owens, Jon Pumplin, Jian-Wei iu, John Smith, Davison E. Soper, Wu-Ki Tung, Hendrik Weerts, James Whitmore, Chien-Peng Yuan
Handbook Of Perturbative QCD: Version 1.0.
Rev.Mod.Phys.67:157-248,1995.

This paper is ranked as "Famous" (100+ citations).

This publication (almost 100 journal pages) presents the core materials from our annual CTEQ Summer School series. This material is well received, and I attach an e-mail from a recent visitor to the CTEQ web page below.

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>From nobody@mail.physics.smu.edu  Tue Jul 10 04:10:05 2001
Delivered-To: randy@phys.psu.edu
Date: Tue, 10 Jul 2001 03:10:22 -0500 (CDT)
From: nobody@mail.physics.smu.edu (anonymous NFS user)
To: scalise@phys.psu.edu
Subject: CTEQ Guestbook

Name: Ben-Wei Zhang

Email address: bwzhang@iopp.ccnu.edu.cn

Rating: Excellent

Comments: It is one of the most wonderful websites I have ever seen.
From the CTEQ website I learned much about QCD and improved my
understanding of QCD deeply. Many materials in this website are
very interesting and instructive. Thank you very much for the
pleasant time I enjoyed in surfing on it.

      In addition, I hope this website can provide more materials
about speeches in the CTEQ Summer School which can be downloaded
freely because there are many people longing to learn more what
the outstanding physcists think of QCD. After all there are only
few people can have a chance to attend the Summer School.

All the very Best!
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9) M.A.G. Aivazis, John C. Collins, Fredrick I. Olness, Wu-Ki Tung,
Leptoproduction Of Heavy Quarks. 2. A Unified QCD Formulation Of Charged And Neutral Current
Processes From Fixed Target To Collider Energies.
Phys.Rev.D50:3102-3118,1994.
[HEP-PH 9312319]

This paper is ranked as "Famous" (100+ citations).

In this paper introduced the ACOT (Aivazis, Collins, Olness, Tung) method for calculating heavy quark production; this approach has been widely adopted. This was the first generalized approach to unify the theory of heavy quark production in both the high energy and low energy regime.

10) J.F. Gunion, J. Grifols, A. Mendez, B. Kayser, Fredrick I. Olness,
Higgs Bosons In Left-Right Symmetric Models.
Phys.Rev.D40:1546,1989.

This paper is ranked as "Famous" (100+ citations).

Left-Right Symmetric Models have long been used to explain the apparent asymmetry of the Weak force of nature. In this paper, we demonstrate that while new Right-handed particles may exist, for most models these particles are beyond the reach of current experiments.

11) P.W. Johnson, F.I. Olness, Wu-Ki Tung,
The Effective Vector Boson Method For High-Energy Collisions.
Phys.Rev.D36:291,1987.

At high energies, a beam of protons can also be considered as a virtual beam of W-bosons. We provide a consistent formulation to compute the probability density of W-bosons in the proton. Earlier work computed only the longitudinal component; this paper gives complete results for both the longitudinal and the transverse components. This formalism provided the basis for a variety of studies involving high energy scattering of W-bosons.

12) F.I. Olness, M.E. Ebel,
Constraints On The Right W Boson Mass In Nonmanifest Left-Right Gauge Theories.
Phys.Rev.D30:1034,1984.

For simplicity, most analyses of Left-Right Gauge Theories assumed equivalent coupling matrices for both the Left and Right sector. We investigated a fully general Left-Right Gauge Theory and demonstrated that, despite the plethora of free parameters, current data could in fact constrain the mass of additional Right-handed boson to the high-mass region.