

start  
Brooks  
at the  
November  
Revolution (1974)

Stan Brodsky's

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Revolution (1974)

BS(1960) PhD(1964) U Minnesota (Don Yennie)  
Postdoc Columbia U (T.D Lee)  
Staff SLAC 1966  
Professor SLAC/Stanford 1976

Alexander Humboldt Award 1987  
JJ Sakurai Prize 2007  
Pomeranchuk Prize 2015  
Watkins Physics Award 2017

Emiritus Faculty Academic Council  
SLAC

# BIO

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# OUTLINE

(1970's)

## I. The decade that the Stan Brodsky research juggernaut was launched

(as of Jan 5, 2020) Stan's career (1964 - 2020)

701 Publications

20 papers with  $\geq 500$  citations

## II The middle of this decade (Nov. 1974 ) featured the SLAC seminar at which the standard model was born

Sam Ting  $q\bar{q} \rightarrow J$

Burt Richter  $e^+e^- \rightarrow \Psi$

# Timelike Momentum in QED

Stanley J. Brodsky  
Samuel C.C. Ting

Phys. Rev 145 (1966) 1018-1022

... a simple method of computing the differential cross section (without involving large cancellations of gauge-variant quantities) is discussed

# The Brodsky Juggernaut begins (1970- 1980)

Statistical Model  $e^+e^- \rightarrow had$  (508)  
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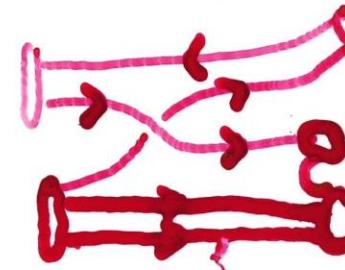
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 on the foundations &  
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Combining "twist" expansion  
 with Mandelstam analyticity  
 in inclusive & exclusive hard  
 scattering processes

Total of 90 publications (1970-1980)

# Stan-Brodsky

(A very collaborative genius)

Guy de Teramond (75)

G.P. Lepage (37)

J.F. Gunion (39)

Confront  
the 1974 Revolution

personal observations 1973-1975

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= Confronts  
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# Post-revolutionary Experimental Landscape 1974

BNL - Ting group - precision  $e^+e^-$  pairs in pp

SLAC - DIS scaling - SPEAR funded as a detector  
taking data Panofsky-Richter-Schwitters  
ADONE measuring R

CERN

ISR - large  $P_T$  - neutral currents

ANL

Neutral currents & polarized beams in ZGS

NAL

Neutral & charged currents

Berkeley - split laser beams testing Bell's  
inequalities Freedman & Clauser

CEA bypass luminosity a problem

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# Pre-revolutionary theory landscape

The bootstrap paradigm faces challenges - 2 pomeron cut  
quarks come in 3-colors / 3 disquises

current quarks - Gell-Mann, Coleman, Adler  
constituent quarks - Zweig, Dalitz, Lipkin  
quark partons - Bjorken, Feynman

non-Abelian gauge theories (Yang-mills)

Higgs mechanism - 't Hooft, Veltman

SU(3) beta function - Gross, Wilczek, Politzer

Search for Charm (preprint) Gaißard, Lee, Rosner

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Rev. Mod Phys 47 (1975)

E-W

Weinberg  
t'Hooft  
Glashow

Gaillard  
Lee  
Rasner

Charm

Wilczek  
Gross  
Politzer

QCD

Ting

Everybody else HEP

PP  $\Rightarrow$  J(3.1..)

Richter

etc  $\Rightarrow$   $\Psi(3.1..)$

The building blocks of the standard model were available in November 1974 is when the entire community started to put them in place

E-W

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$PP \rightarrow J(3.1..)$

SLAC THEORY GROUP WORKSHOPS

Stan + Bj

Blankenbecler

Drell

Harari Eichten Gilman

Richter

$e\tau^- \rightarrow \Psi(3.1..)$

The SLAC theory group collectively decided to forego publications in favor of "informal" workshop notes and extensive communication outreach (phone +...)

# Notes from the SLAC Theory Workshop: Interference Effects Angular Distributions, Widths, Radiative Corrections

J.D. Bjorken, SJ Brodsky, R. Budney, P. Cvitanovic, R. Gilles, J.D. Jackson,  
J.H. Kuhn, R. Pearson, G. Ringland, Y.S. Tsai, B.F.L. Ward, H.A. Weldon, A. Wright

## SLAC Workshop Notes on Narrow States in Hadronic & Photonic Expts.

RJ Blankenbecker, JT Goldman, TL Neff, CT Sachrajda, D. Sivers, J Townsend

## Survey of Theoretical Speculations on the Nature of $\Psi(3105) \in \Psi'(3695)$

I. Bars, MS Chanowitz, SP Driel, RD Peccei, X.Y. Phong, SYI Tsao, S Yablonovitch

## $\Psi$ -chology

H. Harari

## The Spectrum of Charmonium PRL (1975)

E. Eichten, K Gottfried, T Kinoshita, K. Lane, T-M Yang (Cornell)

member  
ition (1974)

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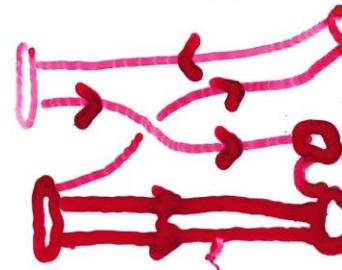
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the assembly of the  
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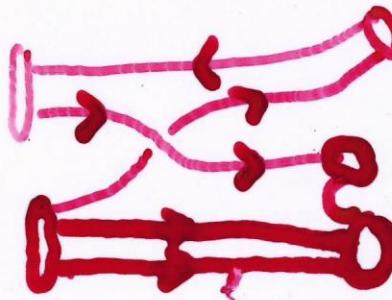
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