

## Curriculum Vitae

### Education

- 1992–1998: University of Wisconsin, Madison, Wisconsin  
Doctor of Philosophy in Physics
- 1988–1992: Bates College, Lewiston, Maine  
Bachelor of Science, *cum laude*, in Physics and Mathematics  
Elected to Phi Beta Kappa and Sigma Xi

### Academic Appointments

- 2005–present: Assistant Professor,  
University of Colorado, Boulder, Colorado
- 2003–2005: Research Associate,  
University of Colorado, Boulder, Colorado
- 2000–2002: Research Assistant Professor,  
Vanderbilt University, Nashville, Tennessee
- 1998–2000: Research Associate,  
Vanderbilt University, Nashville, Tennessee
- 1995–1998: Research Assistant  
University of Wisconsin, Madison, Wisconsin
- 1992–1995: Teaching Assistant  
University of Wisconsin, Madison, Wisconsin

### Research Experience

*CMS (2005–present):*

In October 2005, the Colorado group was accepted into the CMS experiment at CERN in Geneva, Switzerland. In 2008 the LHC will become the highest energy particle accelerator in the world. The main goals of CMS are to search for the Higgs particle and supersymmetry. Finding, or even not finding, these particles will have a profound impact on particle physics. At Colorado, we are ramping up efforts in the areas of tracking and the forward silicon pixel project. I am the group leader of the Colorado forward pixel effort and also participate significantly in the tracking work.

Colorado assumed responsibility for the testing and commissioning of the prototype forward pixel detector which represented 4% of the total detector. Postdoctoral associate Dinardo spent the second half of 2006 at Fermilab supervising the initial checkout of the detector. In January, 2007 he moved to CERN to supervise the continuing commissioning of this detector plus the production detectors as they arrived over the course of the year. Since only a cursory check of the detector is performed at Fermilab, it falls to the CERN group to perform the full testing and calibration studies. This required assembly of the necessary infrastructure such as racks, power supplies, crates, computers, dry air supplies, chillers as well as running cooling lines, power lines, fibers, etc. During the first half of 2007, Dinardo and a Milano technician were the only permanent members of the forward pixel group at CERN. In June, Colorado student Heyburn became the third permanent member and has made significant contributions to the effort by working on various cabling issues and testing the pixel detectors. Dinardo is in charge of all forward pixel commissioning activities at CERN. Some of the milestones reached at CERN include: testing and characterization of the prototype and most of the production detector, testing the insertion of the forward pixel detector into the tracker and reading out both detectors with various grounding schemes to check for noise and cross-talk, testing the pilot run detector with a radioactive source using production readout systems, operating an entire half-cylinder, and extensive testing of the detector at its expected operating temperature ( $-10^{\circ}\text{C}$ ).

The Colorado group designed and constructed five environmental chambers for use in testing and storing the forward pixel detectors. These boxes are 11-feet long and weight 300 lbs. They contain a large amount of insulation and their own cooling lines to allow the detectors to be stored and tested in a cold environment. They also have a dry air line which is chilled by the cooling lines and are equipped with two humidistats and many RTD's to measure humidity and temperature.

I have been involved in tracking work to reconstruct  $V^0$  particles which decay into two charged tracks a fair distance ( $\sim$ centimeters) from the production vertex. Graduate student Drell has developed a class to handle the reconstruction and storage. I have also been working on including these particles to reconstruct decays such as  $B^0 \rightarrow K_S^0 \mu^+ \mu^-$  and  $\Lambda_b^0 \rightarrow \Lambda^0 \mu^+ \mu^-$ . This should be an analysis which can be done with modest amounts of data during the first couple of years of LHC operation. The group will migrate to work on  $b$ -tagging in the forward region and future physics work will concentrate on searches for SUSY in the many areas where  $b$ -tagging plays an essential role.

*BTeV (1999–2005):*

The BTeV experiment planned to start taking data in 2009 using a forward spectrometer in Fermilab collision hall C0. Taking advantage of the large  $b\bar{b}$  cross section at the Tevatron and a fixed-target design, BTeV was intended to challenge the Standard Model explanation of CP violation, mixing, and rare decays in the  $b$  and  $c$  quark systems. While at Vanderbilt I was involved in all aspects of the development of the BTeV muon system. For example, during the summer of 1999 we conducted a beam test at Fermilab which provided valuable information for refining our design. I assembled much of the readout equipment, constructed the trigger, and wrote the data-acquisition software for the beam test. For the BTeV proposal I investigated the efficiency and background rejection of various muon triggers using simulation software. During this project I gained experience in coding and running GEANT and became the BTeV muon simulation expert. I also examined the contributions BTeV can make in the field of semileptonic beauty physics. In other areas of BTeV, I helped to ensure the BTeV simulations ran correctly. I also chaired the BTeV web design committee, charged with developing and implementing the BTeV web site. Unfortunately, BTeV was canceled in February, 2005.

*FOCUS (1995–present):*

The FOCUS experiment was designed to investigate charm production and decay with a photon beam ( $\langle E \rangle \sim 180$  GeV). FOCUS took data at Fermilab during the 1996/7 fixed-target run and easily met its goal of 1 million reconstructed charm decays. During the 15 months of data-taking, I lived at Fermilab and accumulated nearly 100 8-hour shifts, most of them as shift leader. This required ensuring the experiment was working correctly and dealing with any problems that arose.

My main responsibility during the run was the silicon strip detectors which measured the  $e^+/e^-$  beam particle momentum. This is used to find the photon energy, essential for many production studies. This system had been used in a previous experiment in 1991. My responsibility was to ensure it operated correctly throughout the data-taking run. To this end I wrote online monitoring and calibration software with user-friendly Tcl/Tk interfaces and remained on call during the run to fix hardware problems. In addition, I certified the alignment, momentum calibration, and reconstruction software. This system was critical in diagnosing an accelerator pathology known as “superbuckets” which severely degraded the quality of the data. As part of the solution to this problem I adapted the system to allow the experiment to veto these events. I was also involved in the implementation of four new vertex silicon planes. In addition to hardware work, I wrote the on-line monitoring and control software. These additional planes dramatically improved the lifetime resolution of the experiment and provided a 40% increase in the  $D^0 \rightarrow K\pi$  yield (for the same set of selection criteria).

At Vanderbilt I shared responsibility for running “Skim 1.” This required reading 3,000 4.5 GB reconstructed data tapes, performing additional reconstruction, and writing a subset of the data to six separate tapes. Operating continuously, this took several months using a workstation farm and required proficiency in system administrator duties for workstation clusters. Following the reconstruction, I conducted a search for doubly-charmed baryons, that is, baryons with two charm quarks and one light quark. The search was done using 21 possible decay modes of the  $\Xi_{cc}^+(ccd)$  and  $\Xi_{cc}^{++}(ccu)$ . Given some reasonable assumptions about production rates and branching fractions, I expected to see a handful of events. No evidence for any events above background was observed, consistent with our uncertainty about the production and decay of these particles.

At Colorado I completed a search for  $D^0-\bar{D}^0$  mixing using hadronic decay modes. Observation of charm mixing with the statistics available in FOCUS would likely be a sign of physics beyond the Standard Model. The *right-sign* decay mode  $D^0 \rightarrow K^-\pi^+$  is Cabibbo favored (CF). The *wrong-sign* decay  $D^0 \rightarrow K^+\pi^-$  can occur directly as a doubly Cabibbo suppressed decay (DCSD) or by mixing into  $\bar{D}^0$  and decaying in the CF mode. By *tagging* the  $D^0$ 's which come from a  $D^{*+}$  decay into  $D^0\pi^+$  it is possible to determine the initial flavor of the  $D^0$  and thus determine if a decay is right-sign or wrong-sign. Distinguishing DCSD from mixing requires lifetime information; mixing distorts the  $D^0$  lifetime while DCSD does not. The analysis employed a binned maximum likelihood three dimensional fit which uses the  $D^0$  mass, the  $D^{*+}$  mass, and the  $D^0$  lifetime, fitting the right and wrong sign  $K\pi$  data simultaneously. Limits on charm mixing and a new measurement of the DCSD decay  $D^0 \rightarrow K^+\pi^-$  were published in July, 2005.

I am also finishing an analysis of pentaquarks. At least 9 experiments have reported observations of a pentaquark at a mass of around  $1540 \text{ MeV}/c^2$  decaying to a nucleon and a kaon. Using a FOCUS sample of 63 million  $K_S^0$  candidates I have searched for the decay  $\Theta(1540)^+ \rightarrow pK_S^0$ . While FOCUS reconstructs many more  $K_S^0$ ,  $K^*(892)^+$ , and  $\Sigma(1385)^\pm$  decays, no evidence for the  $\Theta(1540)^+$  has been found, calling into question the observations reported by other experiments. This paper is in preparation. I have also searched for  $\Theta_c(3100)^0 \rightarrow D^{*-}p$  which was seen by H1. The FOCUS sample of  $D^{*+}$  decays is 30 times larger and much cleaner than the H1 sample. Also, the production mechanism in FOCUS (real photon on nuclear target) is very similar to H1 (virtual photon on proton). Nevertheless, no pentaquark signal was observed with very little background again calling into question the H1 evidence. Upper limits on the production of charm pentaquarks decaying to  $D^{(*)-}p$  were published in September 2005.

I have contributed extensively to the FOCUS Monte Carlo program. In addition to fixing many bugs, I created part of the trigger simulation, continually update the particle properties table, and tuned the parameters available with PYTHIA to provide a much better match to our data. I have also added elastic and inelastic scattering and ionization energy loss into the simulation. Most recently I discovered an explanation for the low mass tail in fully reconstructed charm decays which has been observed in many experiments over the years. By including a bremsstrahlung-in-decay process, the Monte Carlo provides a much better match to the data mass distribution. This process is implemented using the program PHOTOS.

During the FOCUS analysis and paper review process I have contributed critiques and suggestions more often than anyone else in the collaboration. Several times this has resulted in a significant improvement in the quality of the result.

#### E791 (1994–present):

The E791 experiment recorded data at Fermilab during the 1991 fixed-target run. The experiment utilized a  $500 \text{ GeV}/c$   $\pi^-$  beam impinging on platinum and diamond targets. The goal of 100,000 fully reconstructed charm decays was exceeded by a factor of two. I joined the collaboration in 1994, after the data had been collected and reconstructed.

In 1995 I modified the Monte Carlo program to model the time and position dependent inefficiencies in the drift chambers due to the passage of the 2 MHz  $\pi^-$  beam. This modeling was required by many of the analyses which were subsequently published. I was also involved in the analysis and drafting of the E791 charm-pairs paper, published in 1999. In October, 1998 I defended my dissertation, *A Study of  $D^0$  Production from 500 GeV  $\pi^-$ -Nucleon Interactions*. These results, published in 1999, gave total and differential cross sections of neutral  $D$  mesons from the highest statistics fixed-target hadroproduced charm sample ever.

## Teaching Experience

At the University of Wisconsin I spent seven semesters as a teaching assistant for introductory level physics courses. Each semester I was responsible for two sections of approximately 20 students. For each section I taught one 3-hour laboratory and two 1-hour discussion sessions per week. I prepared and graded quizzes for each laboratory session and half of the discussion sessions. Responsibilities also included conducting office hours, grading homework, and grading tests.

At Vanderbilt University I was very involved in the work of the two graduate students in the group during my tenure. I have also provided guidance and assistance to a graduate student from a university in Mexico which did not have any faculty members involved in the FOCUS experiment. With my assistance during one summer at Vanderbilt and one summer at Colorado this student was able to finish and publish her analysis and has recently received her Ph.D.

## Peer Reviewed Publications

1. E.M. Aitala *et al.* (E791), *Search for  $D^0$ - $\bar{D}^0$  mixing in semileptonic decays*, Phys. Rev. Lett. **77** (1996) 2384.
2. E.M. Aitala *et al.* (E791), *Measurement of the branching ratio  $B(D^+ \rightarrow \rho^0 \ell^+ \nu_\ell)/B(D^+ \rightarrow \bar{K}^{*0} \ell^+ \nu_\ell)$* , Phys. Lett. **B397** (1997) 325.
3. E.M. Aitala *et al.* (E791), *Observation of  $D$ - $\pi$  production correlations in 500 GeV  $\pi^-$ - $N$  interactions*, Phys. Lett. **B403** (1997) 185.
4. E.M. Aitala *et al.* (E791), *Search for CP violation in charged  $D$  meson decays*, Phys. Lett. **B403** (1997) 377.
5. E.M. Aitala *et al.* (E791), *The doubly Cabibbo-suppressed decay  $D^+ \rightarrow K^+ \pi^- \pi^+$* , Phys. Lett. **B404** (1997) 187.
6. E.M. Aitala *et al.* (E791), *Asymmetries between the production of  $D_s^+$  and  $D_s^-$  mesons from 500 GeV/c  $\pi^-$  nucleon interactions as functions of  $x_F$  and  $p_t^2$* , Phys. Lett. **B411** (1997) 230.
7. E.M. Aitala *et al.* (E791), *A search for  $D^0$ - $\bar{D}^0$  mixing and doubly-Cabibbo-suppressed decays of the  $D^0$  in hadronic final states*, Phys. Rev. **D57** (1998) 13.
8. E.M. Aitala *et al.* (E791), *Measurement of the form-factor ratios for  $D^+ \rightarrow \bar{K}^{*0} e^+ \nu_e$* , Phys. Rev. Lett. **80** (1998) 1393.
9. E.M. Aitala *et al.* (E791), *Branching fractions for  $D^0 \rightarrow K^+ K^-$  and  $D^0 \rightarrow \pi^+ \pi^-$ , and a search for CP violation in  $D^0$  decays*, Phys. Lett. **B421** (1998) 405.
10. E.M. Aitala *et al.* (E791), *Study of the decay  $D^0 \rightarrow K^- K^+ \pi^- \pi^+$* , Phys. Lett. **B423** (1998) 185.
11. E.M. Aitala *et al.* (E791), *Search for the pentaquark via the  $P_{cs} \rightarrow \phi p i p$  decay*, Phys. Rev. Lett. **81** (1998) 44.
12. E.M. Aitala *et al.* (E791), *Measurement of the form-factor ratios for  $D^+ \rightarrow \bar{K}^{*0} \ell^+ \nu_\ell$* , Phys. Lett. **B440** (1998) 435.
13. E.M. Aitala *et al.* (E791), *Measurement of the  $D_s$  lifetime*, Phys. Lett. **B445** (1998) 449.

14. E.M. Aitala *et al.* (E791), *Search for the pentaquark via the  $P \rightarrow \bar{K}^{*0} K^- p$  decay*, Phys. Lett. **B448** (1999) 303.
15. E.M. Aitala *et al.* (E791), *Measurement of the form-factor ratios for  $D_s^+ \rightarrow \phi^0 \ell^+ \nu_\ell$* , Phys. Lett. **B450** (1999) 294.
16. E.M. Aitala *et al.* (E791), *Correlations between  $D$  and  $\bar{D}$  mesons produced in 500 GeV/c  $\pi^-$ -nucleon interactions*, Eur. Phys. J. direct **C4** (1999) 1.
17. E.M. Aitala *et al.* (E791), *Measurements of lifetimes and a limit on the lifetime difference in the neutral  $D$ -meson system*, Phys. Rev. Lett. **83** (1999) 32.
18. E.M. Aitala *et al.* (E791), *Total forward and differential cross section of neutral  $D$  mesons produced in 500 GeV/c  $\pi^-$ -nucleon interactions*, Phys. Lett. **B462** (1999) 225.
19. E.M. Aitala *et al.* (E791), *Search for rare and forbidden dilepton decays of the  $D^+$ ,  $D_s^+$ , and  $D^0$  charmed mesons*, Phys. Lett. **B462** (1999) 401.
20. E.M. Aitala *et al.* (E791), *Multidimensional resonance analysis of  $\Lambda_c^+ \rightarrow p K^- \pi^+$* , Phys. Lett. **B471** (2000) 449.
21. J.M. Link *et al.* (FOCUS), *A measurement of lifetime differences in the neutral  $D$ -meson system*, Phys. Lett. **B485** (2000) 62.
22. J.M. Link *et al.* (FOCUS), *Measurement of the  $\Sigma_c^0$  and  $\Sigma_c^{++}$  mass splittings*, Phys. Lett. **B488** (2000) 218.
23. J.M. Link *et al.* (FOCUS), *Search for CP violation in  $D^0$  and  $D^+$  decays*, Phys. Lett. **B491** (2000) 232.
24. E.M. Aitala *et al.* (E791), *Asymmetries in production of  $\Lambda_c^+$  and  $\Lambda_c^-$  baryons in 500 GeV/c  $\pi^-$ -nucleon interactions*, Phys. Lett. **B495** (2000) 42.
25. E.M. Aitala *et al.* (E791), *Asymmetries in the production of  $\Lambda^0$ ,  $\Xi^-$ , and  $\Omega^-$  hyperons in 500 GeV/c  $\pi^-$ -nucleon interactions*, Phys. Lett. **B496** (2000) 9.
26. E.M. Aitala *et al.* (E791), *Study of the  $D_s^+ \rightarrow \pi^- \pi^+ \pi^+$  Decay and Measurement of  $f_0$  Masses and Widths*, Phys. Rev. Lett. **86** (2001) 765.
27. E.M. Aitala *et al.* (E791), *Experimental Evidence for a Light and Broad Scalar Resonance in  $D^+ \rightarrow \pi^- \pi^+ \pi^+$  Decay*, Phys. Rev. Lett. **86** (2001) 770.
28. J.M. Link *et al.* (FOCUS), *Measurement of the relative branching ratio  $BR(\Xi_c^+ \rightarrow p^+ K^- \pi^+)/BR(\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+)$* , Phys. Lett. **B512** (2001) 277.
29. J.M. Link *et al.* (FOCUS), *A study of the decay  $D^0 \rightarrow K^+ \pi^-$* , Phys. Rev. Lett. **86** (2001) 2955.
30. E.M. Aitala *et al.* (E791), *Search for rare and forbidden charm meson decays  $D^0 \rightarrow V \ell^+ \ell^-$  and  $hh\ell\ell$* , Phys. Rev. Lett. **86** (2001) 3969.
31. E.M. Aitala *et al.* (E791), *Direct measurement of the pion valence quark momentum distribution, the pion light-cone wave function squared*, Phys. Rev. Lett. **86** (2001) 4768.
32. E.M. Aitala *et al.* (E791), *Observation of color-transparency in diffractive dissociation of pions*, Phys. Rev. Lett. **86** (2001) 4773.
33. J.M. Link *et al.* (FOCUS), *Measurement of the Branching Ratios of  $D^+$  and  $D_s^+$  Hadronic Decays to Four-Body Final States Containing a  $K_S$* , Phys. Rev. Lett. **87** (2001) 162001.
34. E.M. Aitala *et al.* (E791), *Study of the decay  $D^0 \rightarrow K^- K^- K^+ \pi^+$* , Phys. Rev. **D64** (2001) 112003.
35. J.M. Link *et al.* (FOCUS), *A new measurement of the  $\Xi_c^+$  lifetime*, Phys. Lett. **B523** (2001) 53.
36. J.M. Link *et al.* (FOCUS), *Measurement of natural widths of  $\Sigma_c^0$  and  $\Sigma_c^{++}$  baryons*, Phys. Lett. **B525** (2002) 205.

37. J.M. Link *et al.* (FOCUS), *Search for CP Violation in the Decays  $D^+ \rightarrow K_S^0 \pi^+$  and  $D^+ \rightarrow K_S^0 K^+$* , Phys. Rev. Lett. **88** (2002) 041602.
38. J.M. Link *et al.* (FOCUS), *A High Statistics Measurement of the  $\Lambda_c^+$  Lifetime*, Phys. Rev. Lett. **88** (2002) 161801.
39. J.M. Link *et al.* (FOCUS), *Reconstruction of Veeps, Kinks,  $\Xi^-$ 's, and  $\Omega^-$ 's in the FOCUS spectrometer*, Nucl. Instrum. Methods **A 484** (2002) 174.
40. J.M. Link *et al.* (FOCUS), *Cherenkov particle identification in FOCUS*, Nucl. Instrum. Methods **A 484** (2002) 270.
41. J.M. Link *et al.* (FOCUS), *Evidence for new interference phenomena in the decay  $D^+ \rightarrow K^- \pi^+ \mu^+ \nu$* , Phys. Lett. **B535** (2002) 43.
42. J.M. Link *et al.* (FOCUS), *New measurements of the  $D^0$  and  $D^+$  lifetimes*, Phys. Lett. **B537** (2002) 192.
43. E.M. Aitala *et al.* (E791), *Differential cross sections, charge production asymmetry, and spin-density matrix elements for  $D^{*\pm}$ (2010) produced in 500 GeV/c  $\pi^-$  - nucleon interactions*, Phys. Lett. **B539** (2002) 218.
44. E.M. Aitala *et al.* (E791), *Dalitz Plot Analysis of the Decay  $D^+ \rightarrow K^- \pi^+ \pi^+$  and Indication of a Low-Mass Scalar  $K\pi$  Resonance* Phys. Rev. Lett. **89** (2002) 121801.
45. J.M. Link *et al.* (FOCUS), *Measurements of relative branching ratios of  $\Lambda_c^+$  decays into states containing  $\Sigma$* , Phys. Lett. **B540** (2002) 25.
46. J.M. Link *et al.* (FOCUS), *A new measurement of the  $\Xi_c^0$  lifetime*, Phys. Lett. **B541** (2002) 211.
47. J.M. Link *et al.* (FOCUS), *Measurements of the  $D^+$  and  $D_s^+$  decays into  $K^+ K^- K^+$* , Phys. Lett. **B541** (2002) 227.
48. J.M. Link *et al.* (FOCUS), *New measurements of the  $\frac{\Gamma(D^+ \rightarrow \bar{K}^{*0} \mu^+ \nu)}{\Gamma(D^+ \rightarrow K^- \pi^+ \pi^+)}$  and  $\frac{\Gamma(D_s^+ \rightarrow \phi \mu^+ \nu)}{\Gamma(D_s^+ \rightarrow \phi \pi^+)}$  branching ratios*, Phys. Lett. **B541** (2002) 243.
49. J.M. Link *et al.* (FOCUS), *New measurements of the  $D^+ \rightarrow \bar{K}^{*0} \mu^+ \nu$  form factor ratios*, Phys. Lett. **B544** (2002) 89.
50. J.M. Link *et al.* (FOCUS), *Observation of a 1750 MeV/c<sup>2</sup> enhancement in the diffractive photoproduction of  $K^+ K^-$* , Phys. Lett. **B545** (2002) 50.
51. J.M. Link *et al.* (FOCUS), *Study of the Cabibbo-suppressed decay modes  $D^0 \rightarrow \pi^- \pi^+$  and  $D^0 \rightarrow K^- K^+$* , Phys. Lett. **B555** (2003) 167.
52. J.M. Link *et al.* (FOCUS), *Charm system tests of CPT and Lorentz invariance with FOCUS*, Phys. Lett. **B556** (2003) 7.
53. J.M. Link *et al.* (FOCUS), *Measurement of the  $\Omega_c^0$  lifetime*, Phys. Lett. **B561** (2003) 41.
54. J.M. Link *et al.* (FOCUS), *Study of hadronic five-body decays of charmed mesons*, Phys. Lett. **B561** (2003) 225.
55. J.M. Link *et al.* (FOCUS), *Studies of correlations between  $D$  and  $\bar{D}$  mesons in high energy photoproduction*, Phys. Lett. **B566** (2003) 51.
56. J.M. Link *et al.* (FOCUS), *Measurements of  $\Xi_c^+$  branching ratios*, Phys. Lett. **B571** (2003) 139.
57. J.M. Link *et al.* (FOCUS), *Search for rare and forbidden 3-body di-muon decays of the charmed mesons  $D^+$  and  $D_s^+$* , Phys. Lett. **B572** (2003) 21.
58. J.M. Link *et al.* (FOCUS), *Study of the decay mode  $D^0 \rightarrow K^- K^- K^+ \pi^+$* , Phys. Lett. **B575** (2003) 190.
59. J.M. Link *et al.* (FOCUS), *The target silicon detector for the FOCUS spectrometer*, Nucl. Instrum. Methods **A 516** (2004) 364.

60. J.M. Link *et al.* (FOCUS), *Charm-anticharm baryon production asymmetries in photon-nucleon interactions*, Phys. Lett. **B581** (2004) 39.
61. J.M. Link *et al.* (FOCUS), *Dalitz plot analysis of  $D_s^+$  and  $D^+$  decay to  $\pi^+\pi^-\pi^+$  using the  $K$ -matrix formalism*, Phys. Lett. **B585** (2004) 200.
62. J.M. Link *et al.* (FOCUS), *Measurement of masses and widths of excited charm mesons  $D_2^*$  and evidence for broad states*, Phys. Lett. **B586** (2004) 11.
63. J.M. Link *et al.* (FOCUS), *Measurements of six-body hadronic decays of the  $D^0$  charmed meson*, Phys. Lett. **B586** (2004) 21.
64. J.M. Link *et al.* (FOCUS), *New measurements of the  $D_s^+ \rightarrow \phi\mu^+\nu$  form factor ratios*, Phys. Lett. **B586** (2004) 183.
65. J.M. Link *et al.* (FOCUS), *Study of hadronic five-body decays of charmed mesons involving  $K_S^0$* , Phys. Lett. **B586** (2004) 191.
66. J.M. Link *et al.* (FOCUS), *Measurement of the ratio of the vector to pseudoscalar charm semileptonic decay rate  $\frac{\Gamma(D^+ \rightarrow \bar{K}^{*0}\mu^+\nu_\mu)}{\Gamma(D^+ \rightarrow \bar{K}^0\mu^+\nu_\mu)}$* , Phys. Lett. **B598** (2004) 33.
67. J.M. Link *et al.* (FOCUS), *Study of the doubly and singly Cabibbo suppressed decays  $D^+ \rightarrow K^+\pi^+\pi^-$  and  $D_s^+ \rightarrow K^+\pi^+\pi^-$* , Phys. Lett. **B601** (2004) 10.
68. J.M. Link *et al.* (FOCUS), *Measurement of the branching ratio of the decay  $D^0 \rightarrow \pi^-\mu^+\nu$  relative to  $D^0 \rightarrow K^-\mu^+\nu$* , Phys. Lett. **B607** (2005) 51.
69. J.M. Link *et al.* (FOCUS), *A study of  $D^0 \rightarrow K_S^0 K_S^0 X$  decay channels*, Phys. Lett. **B607** (2005) 59.
70. J.M. Link *et al.* (FOCUS), *Analysis of the semileptonic decay  $D^0 \rightarrow \bar{K}^{*0}\mu^+\nu$* , Phys. Lett. **B607** (2005) 67.
71. J.M. Link *et al.* (FOCUS), *Measurements of the  $q^2$  dependence of the  $D^0 \rightarrow K^-\mu^+\nu$  and  $D^0 \rightarrow \pi^-\mu^+\nu$  form factors*, Phys. Lett. **B607** (2005) 233.
72. J.M. Link *et al.* (FOCUS), *Study of the  $D^0 \rightarrow K^+K^-\pi^+\pi^-$  decay*, Phys. Lett. **B610** (2005) 225.
73. J.M. Link *et al.* (FOCUS), *Measurement of the doubly Cabibbo suppressed decay  $D^0 \rightarrow K^+\pi^-$  and a search for charm mixing*, Phys. Lett. **B618** (2005) 23.
74. J.M. Link *et al.* (FOCUS), *Measurement of the  $D_s^+$  lifetime*, Phys. Rev. Lett. **95** (2005) 052003.
75. J.M. Link *et al.* (FOCUS), *Hadronic mass spectrum analysis of  $D^+ \rightarrow K^-\pi^+\mu^+\nu$  decay and measurement of the  $K^*(892)^0$  mass and width*, Phys. Lett. **B621** (2005) 72.
76. J.M. Link *et al.* (FOCUS), *Search for a strongly decaying neutral charmed pentaquark*, Phys. Lett. **B622** (2005) 229.
77. J.M. Link *et al.* (FOCUS), *Search for  $T$  violation in charm meson decays*, Phys. Lett. **B622** (2005) 239.
78. J.M. Link *et al.* (FOCUS), *Study of  $\Lambda_c^+$  Cabibbo favored decays containing a  $\Lambda$  baryon in the final state*, Phys. Lett. **B624** (2005) 22.
79. J.M. Link *et al.* (FOCUS), *Search for  $\Lambda_c^+ \rightarrow pK^+\pi^-$  and  $D_s^+ \rightarrow K^+K^+\pi^-$  using genetic programming event selection*, Phys. Lett. **B624** (2005) 166.
80. J.M. Link *et al.* (FOCUS), *Application of genetic programming to high energy physics event selection*, Nucl. Instrum. Methods **A 551** (2005) 318.
81. E.M. Aitala *et al.* (E791), *Model independent measurement of  $S$ -wave  $K^-\pi^+$  systems using  $D^+ \rightarrow K\pi\pi$  decays from Fermilab E791*, Phys. Rev. **D73** (2006) 032004.
82. J.M. Link *et al.* (FOCUS), *A non-parametric approach to the  $D^+ \rightarrow \bar{K}^{*0}\mu^+\nu$  form factors*, Phys. Lett. **B633** (2006) 183.

83. J.M. Link *et al.* (FOCUS), *Study of the decay asymmetry parameter and CP violation parameter in the  $\Lambda_c^+ \rightarrow \Lambda \pi^+$  decay*, Phys. Lett. **B634** (2006) 165.
84. J.M. Link *et al.* (FOCUS), *New measurement of  $\frac{BR(D^+ \rightarrow \rho^0 \mu^+ \nu)}{BR(D^+ \rightarrow K^{*0} \mu^+ \nu)}$  branching ratio*, Phys. Lett. **B637** (2006) 32.
85. J.M. Link *et al.* (FOCUS), *Search for a pentaquark decaying to  $pK_S^0$* , Phys. Lett. **B639** (2006) 604.
86. J.M. Link *et al.* (FOCUS), *A Non-parametric approach to measuring the  $K^- \pi^+$  amplitude in  $D^+ \rightarrow K^- K^+ \pi^+$  decay* Phys. Lett. **B648** (2007) 156.
87. J.M. Link *et al.* (FOCUS), *Study of the  $D^0 \rightarrow \pi^- \pi^+ \pi^- \pi^+$  decay*, Phys. Rev. **D75** (2007) 052003.
88. J.M. Link *et al.* (FOCUS), *Dalitz plot analysis of the  $D^+ \rightarrow K^- \pi^+ \pi^+$  decay in the FOCUS experiment* Phys. Lett. **B653** (2007) 1.
89. G.L. Bayatian *et al.* (CMS), *CMS Physics Technical Design Report Volume II: Physics Performance*, J. Phys. G: Nucl. Part. Phys. **34** (2007) 995.

## Conference Talks

1. “E791: High Statistics Charm Production with a  $\pi^-$  Beam” at Heavy Quarks at Fixed Target, Fermi National Accelerator Laboratory, October, 1998. Proceedings in: Harry W. K. Cheung and Joel N. Butler, editors, *Heavy Quarks at Fixed Target, AIP Conference Proceedings 459*, American Institute of Physics, 1998.
2. “Charm Production from Fermilab Fixed-Target Programs” at XXXIV Rencontres de Moriond (QCD and High Energy Hadronic Interactions), Les Arcs, France, March 1999. Proceedings in: Jean Trân Thanh Vân, editor, *Proceedings of the XXXIVth Rencontres de Moriond, '99 QCD and High Energy Hadronic Interactions*, Thế Giới Publishers.
3. “Hadronic Decays of Charm Particles” at the 9<sup>th</sup> International Symposium on Heavy Flavor Physics, Caltech, Pasadena, CA – September 2001. Proceedings in: Anders Ryd and Frank C. Porter, editors, *9<sup>th</sup> International Symposium on Heavy Flavor Physics, AIP Conference Proceedings 618*, American Institute of Physics, 2002.
4. “BTeV: Status and physics prospects” at the 18th International Workshop on Weak Interactions and Neutrinos, Christchurch, New Zealand – January 2002.
5. “CP Violation in Charm” at the International workshop on Heavy Quarks and Leptons 2002, Vietri sul Mare, Salerno, Italy – May 2002. Proceedings in: G. Cataldi, F. Grancagnolo, R. Perrino, and S. Spagnolo, editors, *Proceedings of Heavy Quarks and Leptons 2002, Frascati Physics Series 28*, INFN Laboratori Nazionali di Frascati, 2002.
6. “Recent Results in Charm Physics” at the American Physical Society April Meeting 2003, Philadelphia, PA – April 2003.
7. “Charm Physics from FOCUS” at the 19th International Workshop on Weak Interactions and Neutrinos, Lake Geneva, WI – October 2003.
8. “A FOCUS Search for Charm Mixing” at the 2004 Meeting of the Division of Particles and Fields of the American Physical Society, University of California, Riverside, CA – August 2004. Proceedings in: Int. J. Mod. Phys. **A20** (2005) 3689.
9. “Search for Pentaquarks and Double-Charm Baryons from FOCUS” at the 2004 Meeting of the Division of Particles and Fields of the American Physical Society, University of California, Riverside, CA – August 2004. Proceedings in: Int. J. Mod. Phys. **A20** (2005) 3745.