

**national accelerator laboratory**

TM-388  
2800

RESEARCH PROPOSALS SUBMITTED TO NAL  
AND THE CURRENT STATUS OF THE PROPOSALS

(Through Proposal No. 183)

J. R. Sanford

National Accelerator Laboratory

September 1, 1972



			<u>Status</u>
#1A	D. Cline	(Wisc., Penn, Harvard)	Approved 10-70
	NAL Neutrino Proposal, Search for W to 10 GeV/c <sup>2</sup> ; 4-fermion inter- actions; deep inelastic $\nu$ scattering; $\sigma_{\text{tot}}$ for hydrogen.		
#2B	G. A. Snow	(Maryland, Mich. State, Iowa State, ANL, Notre Dame, Duke, Toronto, Wisc., Purdue, NAL)	Approved 5-71
	Study of Multiparticle p-p Interactions from 100 GeV/c to 400 GeV/c with a 30-Inch Bubble Chamber-- Optical Spark Chamber Hybrid System. Hybrid system with optical spark chambers; 450K pix general survey.		
#3	P. Eberhard	(LBL, SLAC)	Approved 8-70
	Proposal for a Search for Magnetic Monopoles at NAL. Separation from beam dump target after removal.		
#4-I	M. Longo	(Michigan, ANL)	Approved 8-70
	Neutron-Proton Diffraction Scattering and Neutron Total Cross Sections up to 200 GeV. 4-I is the measurement of total cross sections.		
#4-II	M. Longo	(Michigan, ANL)	Approved 8-70
	Neutron-Proton Diffraction Scattering and Neutron Total Cross Sections up to 200 GeV. 4-II is the measurement of diffraction scattering.		
#5	M. Perl	(SLAC)	Withdrawn 10-70
	Muon-Proton Inelastic Scattering.		
#6	A. Krisch	(Michigan, ANL)	Approved 2-71
	200-GeV Proton-Proton Elastic Scattering at High Transverse Momentum.		
#7	D. Meyer	(Michigan, ANL, NAL, Purdue)	Approved 8-70, 4-71
	A Proposal to Measure $\pi^{\pm}p$ and p-p Differential Elastic Scattering Cross Sections From 50 to 170 GeV/c.		

Status

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| #8   | L. Pondrom<br>(Wisc., Michigan)  | Approved<br>8-70    |
|      | Experiments in a Neutral Hyperon Beam.<br>Beam survey; search for $\Delta S = 2$ decay;<br>$\sigma_{tot}$ , $d\sigma$ for $\Lambda^0 p$ , $\bar{\Lambda}^0 p$ scattering.  |                     |
| #9B  | M. Stevenson<br>(LBL, Hawaii)  | Defer<br>12-71      |
|      | Proposal to Study Neutrino Interactions in the<br>30-m <sup>3</sup> NAL Bubble Chamber with External Muon<br>Identifier.<br>$\sigma_{tot}$ ; deep inelastic $\nu$ scattering with<br>auxiliary $\gamma, \mu$ detectors; elastic form<br>factors; W production. |                     |
| #10  | W. Baker<br>(NAL)  | Inactive<br>See 104 |
|      | A <sub>+</sub> Proposal to Measure Total Cross Sections for<br>$\pi^+$ , $K^+$ , $p$ , $\bar{p}$ .   |                     |
| #11A | Y. Kim<br>(Ohio State, Ind. State,<br>Rose Polytechnic, Kansas,<br>NAL)  | Rejected            |
|      | Search for Fast Particles Produced at Large Lab<br>Angles at NAL.<br>Includes search for tachyons, quarks.   |                     |
| #12  | N. Reay<br>(Ohio State, Mich. State,<br>Carleton)  | Approved<br>8-70    |
|      | A Study of Neutron-Proton Charge-Exchange<br>Scattering in the Momentum Range 50-200 GeV/c.  |                     |
| #13  | T. Bowen<br>(Ariz., NASA, LSU,<br>Max-Planck)  | Inactive            |
|      | Ionization Spectrometer Development and<br>Calibration.  |                     |
| #14  | P. Franzini<br>(Columbia, SUNY)  | Approved<br>3-71    |
|      | Proposal to Study Inelastic High-Energy Proton-<br>Proton Collisions in the Diffractive Region.  |                     |
| #15  | J. Steinberger<br>(CERN, Columbia, Univ. of<br>Calif. Santa Cruz, Univ.<br>of Chicago)   | Rejected<br>8-70    |
|      | Proposal for a Measurement of the Momentum<br>Dependence of the Difference in Forward<br>Scattering Amplitudes of K and $\bar{K}$ .  |                     |

		<u>Status</u>
#16	L. T. Kerth (LBL) P-P Elastic and Inelastic Scattering at Small Momentum Transfer.	Rejected 4-71
#17	B. Reynolds (Ohio Univ.) $\bar{p}d$ Interactions from 20 to 60 GeV/c. Search for departures from OPE in $\overline{\Delta^{++}} p$ production.	Active
#18A	G. O'Neill (Princeton, Pavia) Proposal to Study the Reactions $pp \rightarrow p(n\pi^+)$ $p(p\pi^0)$ $p(p\pi^+\pi^-)$ at 200 GeV	Defer 8-71
#19A	D. Tompkins (Univ. of Wyoming) A Search for Monopole Production by 200-500 GeV Protons.	Approved 2-71
#20	M. Block (Northwestern) A Study of Elastic Neutrino Scattering Using a Deuterium Bubble Chamber.	Rejected 12-71
#21	B. Barish (Cal Tech., NAL) Neutrino Physics at Very High Energies. Search for W to 15 GeV/c <sup>2</sup> ; deep inelastic $\nu$ scattering; $\sigma_{tot}$ vs energy to 300 GeV for several A.	Approved 10-70
#22	G. Collins (VPI, BNL) Experimental Proposal to the NAL for a Search for Multigamma Events from Magnetic Monopole Pairs. Search for multi-gamma events from monopole pairs.	Approved 8-70
#23A	J. Rothberg (Washington) Inclusive $\pi p$ and $Kp$ Scattering. Study of $\pi + p \rightarrow \pi + \text{anything}$ ; test scaling law.	Approved 7-72
#24A	D. Caldwell (Univ. of Calif. Santa Barbara, NAL) Measurement of Inelastic Compton Scattering.	Defer 12-70

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#25A	D. Caldwell	(Univ. of Calif. Santa Barbara)	Approved 8-71
	Measurement of the Total Photoabsorption Cross Section on H, D, C, Cu, and Pb for Photon Energies from 14 to 300 GeV, and a Search for the Photoproduced Monopole.		
#26	K. W. Chen	(Mich. State, Cornell, UCSD)	Approved 8-70
	High Momentum Transfer Inelastic Muon Scattering and Test of Scale Invariance at NAL.		
#27A	J. Rosen	(Rochester, NAL, North-western)	Approved 3-71
	Proposal to Study the Coherent Dissociation of Neutrons.		
#28	W. Fry	(Wisconsin, CERN)	Approved 12-71
	Search for Heavy Leptons and Hard Penetrating Radiation in the Neutrino Beam, Study of Diffraction Scattering of Neutrinos; Study of Deep Inelastic $\nu_\mu$ Scattering in a Ne Bubble Chamber at NAL, and Test of the $\Delta S = \Delta Q$ Rule at High Momentum Transfer Using Inclusive Reactions. 100K pix of $\nu$ 's in neon.		
#29	R. Wilson	(Harvard)	Inactive see 98
	Proposal for $\mu P$ Scattering Experiment at NAL.		
#30	T. Kirk	(Harvard, NAL)	Rejected 8-70
	Neutral Kaon Regeneration in Liquid Hydrogen From 40 GeV to 200 GeV.		
#31A	M. Derrick	(ANL, Carnegie-Mellon)	Approved 12-71
	Proposal to Investigate $\bar{\nu}_\mu$ Interactions in Hydrogen at NAL. 200K pix of $\bar{\nu}$ in H <sub>2</sub> .		
#32	R. Hofstadter	(Stanford)	Approved 8-70
	Test and Calibrate a Large NaI (Tl) Tanc Detector and to Measure Neutral Hadron Total Cross Sections.		
#33	L. Mo	(Univ. of Chicago, Penn., NAL)	Inactive see 98
	Preliminary Proposal to Measure the Hadrons in Muon-Proton Inelastic Scattering at the National Accelerator Laboratory.		

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#34	R. Huggett Nuclear-Electromagnetic Cascade Development Study. (Ionization Spectrometer Development)	(LSU, Max-Planck)	Approved 8-70
#35	D. McLeod A_Proposal to Study Resonance Production in $\pi^+ p \rightarrow X p$ at 40 to 80 GeV/c.	(Univ. of Ill. - Chicago Circle)	Inactive see 110
#36A	R. L. Cool A Proposal to Study Small Angle p-p Scattering at Very High Energies.	(Rockefeller, NAL, Rochester, Dubna, USSR)	Approved 2-71
#37	E. Malamud Multibody Final States in pp Collisions Up to 500 GeV. p-p at high energy in 15'.	(NAL, UCLA)	Active
#37A	E. Malamud Multibody Final States in pp Collisions up to 500 GeV. 50K pix of p-p @ 300 GeV in 30"	(NAL, UCLA)	Approved 8-26-71
#38	J. Walker Production of W's and Study of Deep Inelastic Reactions by Very High Energy Neutrinos.	(NAL, ANL, MIT, Northwestern, Pittsburgh)	Rejected 11-70
#39	W. Walker Proposal for the Use of a Rapid Cycling Bubble Chamber at NAL. Diffraction dissociation by 100, 200 GeV/c protons, pions; missing mass, new particle searches.	(Wisconsin, Toronto, Duke)	Withdrawn
#40	R. Willmann Diffractive Processes in $\pi^- p$ Interactions at 100 GeV/c.	(Purdue)	Active
#41	V. Barnes Very High Energy Proton Proton Interactions: Exploratory Survey in a Bubble Chamber.	(Purdue)	Active

		<u>Status</u>
#42	A. Garfinkel (Purdue) Neutrino Interactions in the Deuterium-Neon 14-Foot Double Bubble Chamber. Study s, t dependence of $\nu$ interactions at high energies in $D_2$ .	Defer 12-71
#43	D. Miller (Purdue) Proposal to Study Single Meson Production in Meson Nucleon Interactions at 50 to 100 GeV/c.	Inactive see 110
#44A	B. Roe (Michigan, NAL) Proposal to Study Neutrino Interactions with Protons and Neutrons Using the 14-Foot Bubble Chamber at NAL.	Defer 12-71
#45A	F. Nezrick (NAL, Michigan) Proposal to Study Neutrino Interactions with Protons Using the 14-Foot Bubble Chamber at NAL. 300K pix of $\nu$ in $H_2$ .	Approved 12-71
#46	F. Huson (NAL) A Study of High Energy $\pi^-$ Proton Interactions with the NAL 14-Foot Bubble Chamber.	Active
#47	I. Pless (MIT) Diffraction Dissociation and Elastic Scattering Processes with Incident Protons and Negative Pions in the 200 GeV/c Region.	Withdrawn see 154
#48	R. Adair (Yale, BNL, NAL) A Measurement of the Intensity and Polarization of Muons Produced Directly by the Interactions of Protons with Nuclei.	Approved 12-70
#49	J. Poirier (Notre Dame, NAL) The Electromagnetic Form Factor of the Charged Pion From $\pi^+e^-$ Elastic Scattering.	Defer 8-71
#50A	J. Orear (Cornell, BNL, Lebedev) Large Angle $\pi^\pm$ -P, $K^\pm$ -P, and $P^\pm$ -P Elastic Scattering at High Energies.	Defer 8-71

		<u>Status</u>
#51	E. von Goeler (Northeastern, Stanford) Mass Spectrum Decay Modes for Bosons in the 2.0 to 8.6 GeV/c <sup>2</sup> Mass Range.	Approved 11-71
#52B	H. Weisberg (Penn.) A Proposal to Study Particle Production Spectra and Multiplicities in High Energy Hadron-Hadron Collisions, and for a Beam Survey and Quark Search.	Defer 8-71
#53A	C. Baltay (Columbia, BNL) Search for the Intermediate Boson, Lepton Pair Production, and a Study of Deeply Inelastic Reactions Utilizing High Energy Neutrino Interactions in Liquid Neon. 100K pix of $\nu$ in neon or plates.	Approved 12-71
#54	J. Pine (Cal Tech, UCLA, NAL) Quasi-Two-Body Reactions at 50-200 GeV. s and t dependence of peripheral processes; search for new meson and baryon resonances; $\pi$ - $\pi$ and $\pi$ -K scattering via pion exchange.	Inactive see 110B
#55	A. Tollestrup (Cal Tech) Proposal to Study $\pi^-p \rightarrow \pi^0n$ and $\pi^-p \rightarrow \eta n$ at High Energy.	Inactive see 111
#56	R. Cool (Rockefeller, BNL) Measurement of Total Cross Sections on Hydrogen and Deuterium.	Inactive see 104
#57	S. Lindenbaum (BNL, Yale, NAL) Behavior of High Energy Elastic Scattering and Total Cross Sections for $\pi^\pm$ -p, $K^\pm$ -p, p-p, and $\bar{p}$ -p.	Rejected 3-71
#58	R. Panvini (Vanderbilt, BNL, Wisc.) Proposal to Study Multiparticle Production with NAL Bubble Chamber. Energy dependent survey of pp, $\pi$ p, Kp, $\bar{p}p$ interactions.	Active
#59A	L. Holloway (Univ. of Ill.) A Proposal to Study the Reaction $\pi^-p \rightarrow \pi^- \pi^+ n$ .	Defer 8-71

		<u>Status</u>
#60	A. Wattenberg (Univ. of Ill.) Very High Energy $K_L^0$ Experiments at NAL.	Rejected 8-70
#61	O. Chamberlain (LBL, ANL, Harvard, North-western, Wyo., Yale, NAL) A Proposal to Measure Polarization in $pp$ , $\pi^-p$ , and $\pi^+p$ Elastic Scattering at 50, 100 and 150 GeV/c.	Approved 8-70
#62	J. VanderVelde (Michigan) Study of Multiparticle Production in a Small Bubble Chamber. Study of final states.	Inactive see 138-II
#63	J. Walker (NAL) Survey of Particle Production in Proton Collisions at NAL.	Approved 12-70
#64	A. L. Read (NAL, ANL, Bari, Brown, CERN, Cornell, MIT) Hadron Spectra From High Energy Proton-Proton Interactions. Particle production, elastic and inelastic p-p scattering.	Inactive see 96
#65	K-W Lai (BNL, Fla. State, Vanderbilt) KP and $\bar{K}P$ Interactions From ~20-60 GeV/c in a Large Liquid Hydrogen Bubble Chamber.	Active
#66	J. VanderVelde (Michigan) Study of Low-Mass Peripheral States in a Small Triggered Bubble Chamber. A second round experiment with a downstream focusing spectrometer using scintillation counters; 200,000 machine pulses with 5 pictures/pulse.	Inactive
#67	B. Maglic (Rutgers, Upsala, Mississippi State) Search for Baryon Resonances up to 10 GeV Mass Produced in $p + p \rightarrow p + MM$ with a Resolution of $\pm 25$ MeV.	Approved 2-71

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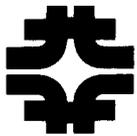
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| #68  | H. Anderson (Univ. of Chicago)  | Inactive<br>see 110B |
|      | Multiparticle Production in $\pi$ -p Collisions at 100 GeV.<br>Elastic $\pi$ -p cross-sections, mesonic missing mass search, particle distribution in mesonic cascades, coherent diffraction; uses UC cyclotron magnet. |                      |
| #69A | W. Willis (Yale, NAL)   | Approved<br>8-70     |
|      | Elastic Scattering of the Long-Lived Hadrons.<br>Elastic scattering at small angles, including Coulomb interference region, up to $ t  \sim 0.2$ (GeV/c) <sup>2</sup> , using high precision spark chambers.            |                      |
| #70  | L. Lederman (Columbia, Harvard, NAL)  | Approved<br>12-70    |
|      | Study of Lepton Pairs From Proton-Nuclear Interactions; Search for Intermediate Bosons and Lee-Wick Structure.  |                      |
| #71A | D. Drickey (UCLA, JINR, Dubna)  | Defer<br>8-71        |
|      | A Measurement of the Pion Form Factor.  |                      |
| #72  | L. Leipuner (BNL, Yale)   | Approved<br>8-70     |
|      | Experimental Proposal to NAL Quark Search. Secondary beam search for particles of fractional charge.  |                      |
| #73  | R. Anderson (SLAC, Northeastern)  | Inactive<br>see 96   |
|      | Proposal to Measure Two Body Elastic and Quasi-Elastic Scattering at High Energies.   |                      |
| #74  | R. Fleischer (GE, NAL)  | Approved<br>8-70     |
|      | Proposal to National Accelerator Laboratory for a Search for Magnetic Monopoles. Parasitic search using plastic detectors.  |                      |
| #75  | T. Yamanouchi (NAL)   | Approved<br>8-70     |
|      | A Proposal to Search for Fractionally Charged Quarks.<br>Secondary beam search for particles of fractional charge.  |                      |

			<u>Status</u>
#76	R. Carrigan	(NAL)	Approved 8-70
	Search for Magnetic Monopoles Produced at NAL. Counters and magnets used to search for free, bound monopoles.		
#77	L. Libby	(Univ. of Colorado)	Inactive
	Proposal to Study High Energy Hyperon Physics at NAL.		
#78A	R. Burnstein	(Ill. Inst. Tech.)	Inactive
	Proposal to Study Multiparticle $\pi^+$ -p and p-p Interactions from 70 GeV/c and Above Utilizing the 30-Inch Bubble Chamber and Associated Equipment at NAL.		
#79	H. Ticho	(UCLA)	Rejected 8-70
	A Measurement of the Regeneration Parameter in the 100 GeV/c Range.		
#80A	T. Ferbel	(Rochester)	Inactive see 138-I
	Proposal to Study Multiparticle-Production Processes Utilizing the 30-Inch Bubble Chamber. General survey, $80K\pi^-$ pix at 70 and $\geq 250$ GeV/c.		
#81	S. B. Kaufman	(ANL, BNL, Univ. of Chicago, Carnegie-Mellon, Purdue, SUNY, Buffalo)	Approved 8-70
	Preliminary Survey of 200 GeV Proton Interactions with Complex Nuclei.		
#82	V. Telegdi	(Univ. of Chicago, SLAC, Univ. of Calif. San Diego, NAL)	Approved 8-70
	Proposal to Investigate Regeneration of Neutral K-Mesons at Very High Energies.		
#83	T. Kitagaki	(Tohoku)	Active
	Study of the Antiproton Interactions in the NAL Hydrogen Bubble Chamber at Very High Energies, 40-140 GeV.		
#84	T. Jenkins	(Case Western Reserve Univ.)	Inactive see 111
	Proposal for an Experiment to Study the Reaction $\pi^- p \rightarrow \pi^0 n$ at 30 to 150 GeV at NAL.		

		<u>Status</u>
#85	L. Gutay (Purdue)	Active
	Proposal for an Exposure of the 15-Foot Deuterium Filled Bubble Chamber to a Beam of Separated $\pi^+$ Mesons at 40 GeV/c at NAL.	
#86A	H. Lubatti (Univ. of Wash., ORSAY)	Approved 5-71
	A Proposal to Study Inelastic Diffractive Processes by Observing Coherent Production of Multi-Pion Final States from He Nuclei.	
#87A	W. Lee (Columbia, Harvard, Hawaii, Cornell, Illinois)	Approved 8-71
	Proposal to Search for Heavy Leptons and Intermediate Bosons from Photon-Nucleon and Photon-Nuclei Collisions.	
#88	V. Hagopian (Florida State Univ.)	Rejected 8-26-71
	NAL Bubble Chamber Proposal Search for Fractionally Charged Particles. Quark search, $2 \times 10^4$ pictures, half with negative beam.	
#89	W. Fretter (Univ. of Calif. Berkeley)	Active
	Interactions of 150 GeV $\pi^-$ Mesons in a Large NAL Bubble Chamber Filled with $H_2$ -Ne.	
#90	J. Gierula (Cracow)	Approved 8-70
	Cracow Nuclear Emulsion Exposures.	
#91	C-Y Chien (Johns Hopkins, NAL)	Withdrawn 7-14-71
	Proposal for an Emulsion Experiment to Measure the Energy Dependence of Total Cross Sections and Multiplicities up to 500 GeV/c.	
#92A	F. Sciulli (Cal Tech.)	Rejected 12-71
	A Neutrino Experiment in the NAL $30m^3$ Bubble Chamber Using "Monoenergetic" Neutrinos.	
#93	M. Wahlig (LBL)	Inactive see 111
	Small-angle Charge Exchange Reactions $\pi^- + p \rightarrow \pi^0 + n$ and $\pi^- + p \rightarrow \eta + n$ from 50 to 200 GeV/c.	

		<u>Status</u>
#94	E. Goza (Louisiana State Univ.) 100 GeV Pion Interactions in Photographic Emulsion. (A Parasitic Experiment).	Approved 12-71
#95A	B. Cox (Johns Hopkins, NAL) Proposal for Examination of Wide Angle Gamma Rays at NAL.	Approved 6-71
#96	D. Ritson (SLAC, Univ. of Bari, Brown, CERN, ANL, Cornell, MIT, NAL, Northeastern) Focusing Spectrometer Facility.	Approved 12-70
#97	J. Lach (NAL, Yale) Elastic Scattering of the Hyperons. Small angle scattering of negative hyperons $\Sigma^-$ , $\Xi^-$ , $\Omega^-$ ; (also $\Sigma^+$ , $\Xi^-$ and $\Omega^-$ if mass resolution permits) for $ t  \sim 0.1$ to $0.6$ (GeV/c) <sup>2</sup> . Search for leptons $> 10^{-11}$ sec.	Approved 8-70
#98	L. Mo (Univ. of Chicago, Harvard, NAL) Muon-Proton Inelastic Scattering Experiment at the National Accelerator Laboratory.	Approved 1-71
#99	R. Diebold (ANL, Cornell) A Study of $\pi^+ p \rightarrow K^+ \Sigma^+$ and $\pi^+ p \rightarrow K^+ Y^{*+}$ Using the Focusing Spectrometer Facility.	Active
#100	P. Piroue (Princeton, Univ. of Chicago) A Proposal to Study Particle Production at High Transverse Momenta.	Approved 2-71
#101	B. Gittelmann (Cornell, ANL) Elastic $\pi^+ e^-$ Scattering.	Defer 8-71
#102	T. Jenkins (Case Western Reserve Univ.) Proposal for an Experiment to Study the Reaction $K^- p \rightarrow \bar{K}^0 n$ at NAL Energies.	Inactive see 135
#103	D. King (Univ. of Tenn.) Intra-Nuclear Cascade Produced by 200 GeV Protons.	Approved 2-71

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#104	T. Kycia Measurement of Total Cross Sections on Hydrogen and Deuterium.	(BNL, Rockefeller, NAL)	Approved 8-70
#105	P. Malhotra S. Ganguli A Proposal to Study Some Characteristics of Proton-Nucleon and Proton-Nucleus Collisions at 400 GeV using Nuclear Emulsions.	(Tata Inst.)	Approved 4-71
#106	D. Miller Proposal for a Study of Multiparticle Production at NAL Using an Array of Wide-Gap Triggerable Spark Chambers.	(Northwestern, ANL, Michigan State)	Rejected 5-71
#107A	K-W Lai Measurements of Elastic and Quasi-Elastic Scatterings of pp and pp from ~20 to 40 GeV/c.	(BNL, Purdue )	Rejected 8-71
#108	M. Awschalom A Beam Dump Experiment.	(NAL)	Approved 3-71
#109	K. Pretzl A Proposal for a Preliminary Beam Survey in the 3.5 Mrad Beam.	(NAL)	Withdrawn
#110B	J. Pine Proposal to Study Multiparticle Peripheral Physics at NAL. A Proposal for multiparticle physics using a magnetic spectrometer.	(Cal Tech., NAL, SUNY, UCLA, Univ. of Ill.)	Approved 4-72
#111	A Tollestrup Proposal to Study $\pi^-p \rightarrow \pi^0 n$ and $\pi^-p \rightarrow \eta n$ . Measurement of asymptotic cross sections; test of Regge Theory.	(Cal Tech., NAL, LBL)	Approved 2-71
#112	M. Kreisler Neutron Diffraction Dissociation in Coulomb Dissociation from Various Nuclei.	(Michigan, Princeton)	Rejected 8-71



**national accelerator laboratory**

TM-388  
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September 1, 1972



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#2B	G. A. Snow	(Maryland, Mich. State, Iowa State, ANL, Notre Dame, Duke, Toronto, Wisc., Purdue, NAL)	Approved 5-71
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#3	P. Eberhard	(LBL, SLAC)	Approved 8-70
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#4-I	M. Longo	(Michigan, ANL)	Approved 8-70
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#7	D. Meyer	(Michigan, ANL, NAL, Purdue)	Approved 8-70, 4-71
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|      | Experiments in a Neutral Hyperon Beam.<br>Beam survey; search for $\Delta S = 2$ decay;<br>$\sigma_{\text{tot}}$ , $d\sigma$ for $\Lambda^0 p$ , $\bar{\Lambda}^0 p$ scattering.  |                     |
| #9B  | M. Stevenson<br>(LBL, Hawaii)   | Defer<br>12-71      |
|      | Proposal to Study Neutrino Interactions in the<br>30-m <sup>3</sup> NAL Bubble Chamber with External Muon<br>Identifier.<br>$\sigma_{\text{tot}}$ ; deep inelastic $\nu$ scattering with<br>auxiliary $\gamma, \mu$ detectors; elastic form<br>factors; W production. |                     |
| #10  | W. Baker<br>(NAL)   | Inactive<br>See 104 |
|      | A <sub>+</sub> Proposal to Measure Total Cross Sections for<br>$\pi^+$ , $K^+$ , $p$ , $\bar{p}$ .  |                     |
| #11A | Y. Kim<br>(Ohio State, Ind. State,<br>Rose Polytechnic, Kansas,<br>NAL)   | Rejected            |
|      | Search for Fast Particles Produced at Large Lab<br>Angles at NAL.<br>Includes search for tachyons, quarks.  |                     |
| #12  | N. Reay<br>(Ohio State, Mich. State,<br>Carleton)   | Approved<br>8-70    |
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| #13  | T. Bowen<br>(Ariz., NASA, LSU,<br>Max-Planck)   | Inactive            |
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|      | Proposal to Study Inelastic High-Energy Proton-<br>Proton Collisions in the Diffractive Region.   |                     |
| #15  | J. Steinberger<br>(CERN, Columbia, Univ. of<br>Calif. Santa Cruz, Univ.<br>of Chicago)  | Rejected<br>8-70    |
|      | Proposal for a Measurement of the Momentum<br>Dependence of the Difference in Forward<br>Scattering Amplitudes of K and $\bar{K}$ .   |                     |

Status

#16	L. T. Kerth (LBL)	Rejected 4-71
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#17	B. Reynolds (Ohio Univ.)	Active
	$\bar{p}d$ Interactions from 20 to 60 GeV/c. Search for departures from OPE in $\overline{\Delta^{++}} p$ production.	
#18A	G. O'Neill (Princeton, Pavia)	Defer 8-71
	Proposal to Study the Reactions $pp \rightarrow p(n\pi^+)$ $p(p\pi^0)$ $p(p\pi^+\pi^-)$ at 200 GeV	
#19A	D. Tompkins (Univ. of Wyoming)	Approved 2-71
	A Search for Monopole Production by 200-500 GeV Protons.	
#20	M. Block (Northwestern)	Rejected 12-71
	A Study of Elastic Neutrino Scattering Using a Deuterium Bubble Chamber.	
#21	B. Barish (Cal Tech., NAL)	Approved 10-70
	Neutrino Physics at Very High Energies. Search for W to 15 GeV/c <sup>2</sup> ; deep inelastic $\nu$ scattering; $\sigma_{tot}$ vs energy to 300 GeV for several A.	
#22	G. Collins (VPI, BNL)	Approved 8-70
	Experimental Proposal to the NAL for a Search for Multigamma Events from Magnetic Monopole Pairs. Search for multi-gamma events from monopole pairs.	
#23A	J. Rothberg (Washington)	Approved 7-72
	Inclusive $\pi p$ and $Kp$ Scattering. Study of $\pi + p \rightarrow \pi + \text{anything}$ ; test scaling law.	
#24A	D. Caldwell (Univ. of Calif. Santa Barbara, NAL)	Defer 12-70
	Measurement of Inelastic Compton Scattering.	

Status

#25A	D. Caldwell	(Univ. of Calif. Santa Barbara)	Approved 8-71
	Measurement of the Total Photoabsorption Cross Section on H, D, C, Cu, and Pb for Photon Energies from 14 to 300 GeV, and a Search for the Photoproduced Monopole.		
#26	K. W. Chen	(Mich. State, Cornell, UCSD)	Approved 8-70
	High Momentum Transfer Inelastic Muon Scattering and Test of Scale Invariance at NAL.		
#27A	J. Rosen	(Rochester, NAL, North-western)	Approved 3-71
	Proposal to Study the Coherent Dissociation of Neutrons.		
#28	W. Fry	(Wisconsin, CERN)	Approved 12-71
	Search for Heavy Leptons and Hard Penetrating Radiation in the Neutrino Beam, Study of Diffraction Scattering of Neutrinos; Study of Deep Inelastic $\nu_{\mu}$ Scattering in a Ne Bubble Chamber at NAL, and Test of the $\Delta S = \Delta Q$ Rule at High Momentum Transfer Using Inclusive Reactions. 100K pix of $\nu$ 's in neon.		
#29	R. Wilson	(Harvard)	Inactive see 98
	Proposal for $\mu P$ Scattering Experiment at NAL.		
#30	T. Kirk	(Harvard, NAL)	Rejected 8-70
	Neutral Kaon Regeneration in Liquid Hydrogen From 40 GeV to 200 GeV.		
#31A	M. Derrick	(ANL, Carnegie-Mellon)	Approved 12-71
	Proposal to Investigate $\bar{\nu}_{\mu}$ Interactions in Hydrogen at NAL. 200K pix of $\bar{\nu}$ in H <sub>2</sub> .		
#32	R. Hofstadter	(Stanford)	Approved 8-70
	Test and Calibrate a Large NaI (Tl) Tanc Detector and to Measure Neutral Hadron Total Cross Sections.		
#33	L. Mo	(Univ. of Chicago, Penn., NAL)	Inactive see 98
	Preliminary Proposal to Measure the Hadrons in Muon-Proton Inelastic Scattering at the National Accelerator Laboratory.		

			<u>Status</u>
#34	R. Huggett Nuclear-Electromagnetic Cascade Development Study. (Ionization Spectrometer Development)	(LSU, Max-Planck)	Approved 8-70
#35	D. McLeod A_Proposal to Study Resonance Production in $\pi$ p $\rightarrow$ X p at 40 to 80 GeV/c.	(Univ. of Ill. - Chicago Circle)	Inactive see 110
#36A	R. L. Cool A Proposal to Study Small Angle p-p Scattering at Very High Energies.	(Rockefeller, NAL, Rochester, Dubna, USSR)	Approved 2-71
#37	E. Malamud Multibody Final States in pp Collisions Up to 500 GeV. p-p at high energy in 15'.	(NAL, UCLA)	Active
#37A	E. Malamud Multibody Final States in pp Collisions up to 500 GeV. 50K pix of p-p @ 300 GeV in 30"	(NAL, UCLA)	Approved 8-26-71
#38	J. Walker Production of W's and Study of Deep Inelastic Reactions by Very High Energy Neutrinos.	(NAL, ANL, MIT, Northwestern, Pittsburgh)	Rejected 11-70
#39	W. Walker Proposal for the Use of a Rapid Cycling Bubble Chamber at NAL. Diffraction dissociation by 100, 200 GeV/c protons, pions; missing mass, new particle searches.	(Wisconsin, Toronto, Duke)	Withdrawn
#40	R. Willmann Diffractive Processes in $\pi^-$ p Interactions at 100 GeV/c.	(Purdue)	Active
#41	V. Barnes Very High Energy Proton Proton Interactions: Exploratory Survey in a Bubble Chamber.	(Purdue)	Active

		<u>Status</u>
#42	A. Garfinkel (Purdue) Neutrino Interactions in the Deuterium-Neon 14-Foot Double Bubble Chamber. Study s, t dependence of $\nu$ interactions at high energies in $D_2$ .	Defer 12-71
#43	D. Miller (Purdue) Proposal to Study Single Meson Production in Meson Nucleon Interactions at 50 to 100 GeV/c.	Inactive see 110
#44A	B. Roe (Michigan, NAL) Proposal to Study Neutrino Interactions with Protons and Neutrons Using the 14-Foot Bubble Chamber at NAL.	Defer 12-71
#45A	F. Nezrick (NAL, Michigan) Proposal to Study Neutrino Interactions with Protons Using the 14-Foot Bubble Chamber at NAL. 300K pix of $\nu$ in $H_2$ .	Approved 12-71
#46	F. Huson (NAL) A Study of High Energy $\pi^-$ Proton Interactions with the NAL 14-Foot Bubble Chamber.	Active
#47	I. Pless (MIT) Diffraction Dissociation and Elastic Scattering Processes with Incident Protons and Negative Pions in the 200 GeV/c Region.	Withdrawn see 154
#48	R. Adair (Yale, BNL, NAL) A Measurement of the Intensity and Polarization of Muons Produced Directly by the Interactions of Protons with Nuclei.	Approved 12-70
#49	J. Poirier (Notre Dame, NAL) The Electromagnetic Form Factor of the Charged Pion From $\pi^+e^-$ Elastic Scattering.	Defer 8-71
#50A	J. Orear (Cornell, BNL, Lebedev) Large Angle $\pi^\pm$ -P, $K^\pm$ -P, and $P^\pm$ -P Elastic Scattering at High Energies.	Defer 8-71

		<u>Status</u>
#51	E. von Goeler (Northeastern, Stanford) Mass Spectrum Decay Modes for Bosons in the 2.0 to 8.6 GeV/c <sup>2</sup> Mass Range.	Approved 11-71
#52B	H. Weisberg (Penn.) A Proposal to Study Particle Production Spectra and Multiplicities in High Energy Hadron-Hadron Collisions, and for a Beam Survey and Quark Search.	Defer 8-71
#53A	C. Baltay (Columbia, BNL) Search for the Intermediate Boson, Lepton Pair Production, and a Study of Deeply Inelastic Reactions Utilizing High Energy Neutrino Interactions in Liquid Neon. 100K pix of $\nu$ in neon or plates.	Approved 12-71
#54	J. Pine (Cal Tech, UCLA, NAL) Quasi-Two-Body Reactions at 50-200 GeV. s and t dependence of peripheral processes; search for new meson and baryon resonances; $\pi$ - $\pi$ and $\pi$ -K scattering via pion exchange.	Inactive see 110B
#55	A. Tollestrup (Cal Tech) Proposal to Study $\pi^- p \rightarrow \pi^0 n$ and $\pi^- p \rightarrow \eta n$ at High Energy.	Inactive see 111
#56	R. Cool (Rockefeller, BNL) Measurement of Total Cross Sections on Hydrogen and Deuterium.	Inactive see 104
#57	S. Lindenbaum (BNL, Yale, NAL) Behavior of High Energy Elastic Scattering and Total Cross Sections for $\pi^\pm$ -p, $K^\pm$ -p, p-p, and $\bar{p}$ -p.	Rejected 3-71
#58	R. Panvini (Vanderbilt, BNL, Wisc.) Proposal to Study Multiparticle Production with NAL Bubble Chamber. Energy dependent survey of pp, $\pi$ p, Kp, $\bar{p}p$ interactions.	Active
#59A	L. Holloway (Univ. of Ill.) A Proposal to Study the Reaction $\pi^- p \rightarrow \pi^- \pi^+ n$ .	Defer 8-71

		<u>Status</u>
#60	A. Wattenberg (Univ. of Ill.) Very High Energy $K_L^0$ Experiments at NAL.	Rejected 8-70
#61	O. Chamberlain (LBL, ANL, Harvard, North-western, Wyo., Yale, NAL) A Proposal to Measure Polarization in $pp$ , $\pi^-p$ , and $\pi^+p$ Elastic Scattering at 50, 100 and 150 GeV/c.	Approved 8-70
#62	J. VanderVelde (Michigan) Study of Multiparticle Production in a Small Bubble Chamber. Study of final states.	Inactive see 138-II
#63	J. Walker (NAL) Survey of Particle Production in Proton Collisions at NAL.	Approved 12-70
#64	A. L. Read (NAL, ANL, Bari, Brown, CERN, Cornell, MIT) Hadron Spectra From High Energy Proton-Proton Interactions. Particle production, elastic and inelastic p-p scattering.	Inactive see 96
#65	K-W Lai (BNL, Fla. State, Vanderbilt) KP and $\bar{K}P$ Interactions From ~20-60 GeV/c in a Large Liquid Hydrogen Bubble Chamber.	Active
#66	J. VanderVelde (Michigan) Study of Low-Mass Peripheral States in a Small Triggered Bubble Chamber. A second round experiment with a downstream focusing spectrometer using scintillation counters; 200,000 machine pulses with 5 pictures/pulse.	Inactive
#67	B. Maglic (Rutgers, Upsala, Mississippi State) Search for Baryon Resonances up to 10 GeV Mass Produced in $p + p \rightarrow p + MM$ with a Resolution of $\pm 25$ MeV.	Approved 2-71

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|------|---|----------------------|
| #68  | H. Anderson (Univ. of Chicago)  | Inactive<br>see 110B |
|      | Multiparticle Production in $\pi$ -p Collisions at 100 GeV.<br>Elastic $\pi$ -p cross-sections, mesonic missing mass search, particle distribution in mesonic cascades, coherent diffraction; uses UC cyclotron magnet. |                      |
| #69A | W. Willis (Yale, NAL)   | Approved<br>8-70     |
|      | Elastic Scattering of the Long-Lived Hadrons.<br>Elastic scattering at small angles, including Coulomb interference region, up to $ t  \sim 0.2$ (GeV/c) <sup>2</sup> , using high precision spark chambers.            |                      |
| #70  | L. Lederman (Columbia, Harvard, NAL)  | Approved<br>12-70    |
|      | Study of Lepton Pairs From Proton-Nuclear Interactions; Search for Intermediate Bosons and Lee-Wick Structure.  |                      |
| #71A | D. Drickey (UCLA, JINR, Dubna)  | Defer<br>8-71        |
|      | A Measurement of the Pion Form Factor.  |                      |
| #72  | L. Leipuner (BNL, Yale)   | Approved<br>8-70     |
|      | Experimental Proposal to NAL Quark Search.<br>Secondary beam search for particles of fractional charge.   |                      |
| #73  | R. Anderson (SLAC, Northeastern)  | Inactive<br>see 96   |
|      | Proposal to Measure Two Body Elastic and Quasi-Elastic Scattering at High Energies.   |                      |
| #74  | R. Fleischer (GE, NAL)  | Approved<br>8-70     |
|      | Proposal to National Accelerator Laboratory for a Search for Magnetic Monopoles.<br>Parasitic search using plastic detectors.   |                      |
| #75  | T. Yamanouchi (NAL)   | Approved<br>8-70     |
|      | A Proposal to Search for Fractionally Charged Quarks.<br>Secondary beam search for particles of fractional charge.  |                      |

			<u>Status</u>
#76	R. Carrigan Search for Magnetic Monopoles Produced at NAL. Counters and magnets used to search for free, bound monopoles.	(NAL)	Approved 8-70
#77	L. Libby Proposal to Study High Energy Hyperon Physics at NAL.	(Univ. of Colorado)	Inactive
#78A	R. Burnstein Proposal to Study Multiparticle $\pi^+$ -p and p-p Interactions from 70 GeV/c and Above Utilizing the 30-Inch Bubble Chamber and Associated Equipment at NAL.	(Ill. Inst. Tech.)	Inactive
#79	H. Ticho A Measurement of the Regeneration Parameter in the 100 GeV/c Range.	(UCLA)	Rejected 8-70
#80A	T. Ferbel Proposal to Study Multiparticle-Production Processes Utilizing the 30-Inch Bubble Chamber. General survey, $80K\pi^-$ pix at 70 and $\geq 250$ GeV/c.	(Rochester)	Inactive see 138-I
#81	S. B. Kaufman Preliminary Survey of 200 GeV Proton Interactions with Complex Nuclei.	(ANL, BNL, Univ. of Chicago, Carnegie-Mellon, Purdue, SUNY, Buffalo)	Approved 8-70
#82	V. Telegdi Proposal to Investigate Regeneration of Neutral K-Mesons at Very High Energies.	(Univ. of Chicago, SLAC, Univ. of Calif. San Diego, NAL)	Approved 8-70
#83	T. Kitagaki Study of the Antiproton Interactions in the NAL Hydrogen Bubble Chamber at Very High Energies, 40-140 GeV.	(Tohoku)	Active
#84	T. Jenkins Proposal for an Experiment to Study the Reaction $\pi^- p \rightarrow \pi^0 n$ at 30 to 150 GeV at NAL.	(Case Western Reserve Univ.)	Inactive see 111

		<u>Status</u>
#85	L. Gutay (Purdue)	Active
	Proposal for an Exposure of the 15-Foot Deuterium Filled Bubble Chamber to a Beam of Separated $\pi^+$ Mesons at 40 GeV/c at NAL.	
#86A	H. Lubatti (Univ. of Wash., ORSAY)	Approved 5-71
	A Proposal to Study Inelastic Diffractive Processes by Observing Coherent Production of Multi-Pion Final States from He Nuclei.	
#87A	W. Lee (Columbia, Harvard, Hawaii, Cornell, Illinois)	Approved 8-71
	Proposal to Search for Heavy Leptons and Intermediate Bosons from Photon-Nucleon and Photon-Nuclei Collisions.	
#88	V. Hagopian (Florida State Univ.)	Rejected 8-26-71
	NAL Bubble Chamber Proposal Search for Fractionally Charged Particles. Quark search, $2 \times 10^4$ pictures, half with negative beam.	
#89	W. Fretter (Univ. of Calif. Berkeley)	Active
	Interactions of 150 GeV $\pi^-$ Mesons in a Large NAL Bubble Chamber Filled with $H_2$ -Ne.	
#90	J. Gierula (Cracow)	Approved 8-70
	Cracow Nuclear Emulsion Exposures.	
#91	C-Y Chien (Johns Hopkins, NAL)	Withdrawn 7-14-71
	Proposal for an Emulsion Experiment to Measure the Energy Dependence of Total Cross Sections and Multiplicities up to 500 GeV/c.	
#92A	F. Sciulli (Cal Tech.)	Rejected 12-71
	A Neutrino Experiment in the NAL $30m^3$ Bubble Chamber Using "Monoenergetic" Neutrinos.	
#93	M. Wahlig (LBL)	Inactive see 111
	Small-angle Charge Exchange Reactions $\pi^- + p \rightarrow \pi^0 + n$ and $\pi^- + p \rightarrow \eta + n$ from 50 to 200 GeV/c.	

Status

#94	E. Goza 100 GeV Pion Interactions in Photographic Emulsion. (A Parasitic Experiment).	(Louisiana State Univ.)	Approved 12-71
#95A	B. Cox Proposal for Examination of Wide Angle Gamma Rays at NAL.	(Johns Hopkins, NAL)	Approved 6-71
#96	D. Ritson Focusing Spectrometer Facility.	(SLAC, Univ. of Bari, Brown, CERN, ANL, Cornell, MIT, NAL, Northeastern)	Approved 12-70
#97	J. Lach Elastic Scattering of the Hyperons. Small angle scattering of negative hyperons $\Sigma^-$ , $\Xi^-$ , $\Omega^-$ ; (also $\Sigma^+$ , $\Xi^-$ and $\Omega^-$ if mass resolution permits) for $ t  \sim 0.1$ to $0.6$ $(\text{GeV}/c)^2$ . Search for leptons $> 10^{-11}$ sec.	(NAL, Yale)	Approved 8-70
#98	L. Mo Muon-Proton Inelastic Scattering Experiment at the National Accelerator Laboratory.	(Univ. of Chicago, Harvard, NAL)	Approved 1-71
#99	R. Diebold A Study of $\pi^+ p \rightarrow K^+ \Sigma^+$ and $\pi^+ p \rightarrow K^+ Y^{*+}$ Using the Focusing Spectrometer Facility.	(ANL, Cornell)	Active
#100	P. Piroue A Proposal to Study Particle Production at High Transverse Momenta.	(Princeton, Univ. of Chicago)	Approved 2-71
#101	B. Gittelman Elastic $\pi^+ e^-$ Scattering.	(Cornell, ANL)	Defer 8-71
#102	T. Jenkins Proposal for an Experiment to Study the Reaction $K^- p \rightarrow \bar{K}^0 n$ at NAL Energies.	(Case Western Reserve Univ.)	Inactive see 135
#103	D. King Intra-Nuclear Cascade Produced by 200 GeV Protons.	(Univ. of Tenn.)	Approved 2-71

			<u>Status</u>
#104	T. Kycia Measurement of Total Cross Sections on Hydrogen and Deuterium.	(BNL, Rockefeller, NAL)	Approved 8-70
#105	P. Malhotra S. Ganguli A Proposal to Study Some Characteristics of Proton-Nucleon and Proton-Nucleus Collisions at 400 GeV using Nuclear Emulsions.	(Tata Inst.)	Approved 4-71
#106	D. Miller Proposal for a Study of Multiparticle Production at NAL Using an Array of Wide-Gap Triggerable Spark Chambers.	(Northwestern, ANL, Michigan State)	Rejected 5-71
#107A	K-W Lai Measurements of Elastic and Quasi-Elastic Scatterings of pp and pp from ~20 to 40 GeV/c.	(BNL, Purdue )	Rejected 8-71
#108	M. Awschalom A Beam Dump Experiment.	(NAL)	Approved 3-71
#109	K. Pretzl A Proposal for a Preliminary Beam Survey in the 3.5 Mrad Beam.	(NAL)	Withdrawn
#110B	J. Pine Proposal to Study Multiparticle Peripheral Physics at NAL. A Proposal for multiparticle physics using a magnetic spectrometer.	(Cal Tech., NAL, SUNY, UCLA, Univ. of Ill.)	Approved 4-72
#111	A Tollestrup Proposal to Study $\pi^-p \rightarrow \pi^0 n$ and $\pi^-p \rightarrow \eta n$ . Measurement of asymptotic cross sections; test of Regge Theory.	(Cal Tech., NAL, LBL)	Approved 2-71
#112	M. Kreisler Neutron Diffraction Dissociation in Coulomb Dissociation from Various Nuclei.	(Michigan, Princeton)	Rejected 8-71

		<u>Status</u>
#113	D. H. Miller (Northwestern Univ.) Proposal to Study the $K^{\pm}$ Charge Exchange Reactions at High Energies. Measurement of $d\sigma/dt$ for $K^-p \rightarrow \bar{K}^0n$ , $d^2\sigma/dt dp$ for $\bar{K}^{\pm}d \rightarrow K^0nn$ , $K^0pp$ .	Inactive see 135
#114	P. L. Jain (SUNY at Buffalo) Interaction of 200-500 GeV Proton with Emulsion Nuclei.	Approved 3-72
#115	M. L. Stevenson (LBL) Search for Long Lived Particles ( $\tau \geq 0.1$ m sec). Parasitic beam-dump experiment for long lived particles ( $\tau \geq 0.1$ m sec).	Approved 8-26-71
#116	J. Hébert (Ottawa, Barcelona, McGill, NAL, Toronto, Strasbourg) Interaction of High Energy Protons in Nuclear Emulsions Loaded with $B^{10}$ and LiF.	Approved 4-71
#117	O. Kusomoto (Osaka City Univ., Hiroshima Univ., INS Tokyo Univ.) Phenomenological Study of 200 and 500 GeV/c Proton-Proton Collisions in Emulsion.	Approved 4-71
#118	J. I. Friedman (MIT, Bari, Brown, NAL) Hadron Spectra From High Energy Interactions. Use of NAL focussing spectrometer facility to study inclusive reactions of type $a + b \rightarrow c + \text{anything}$ , with incident $p$ , $\pi$ , and $K$ .	Active
#119	C. J. Batty (RHEL, Manchester, Hebrew Univ., ANL) Production of Heavy and Super-Heavy Nuclei in Targets Irradiated by Very High Energy Protons.	Defer 8-71
#120	D. Cline (Wisconsin, Harvard) Early $\pi^0$ Particle Production Survey with the Gas Jet Target Survey of photon production in gas-jet targets, using lead glass counters.	Approved 6-71

		<u>Status</u>
#121A	R. Lander (Univ. of Calif. Davis)	Approved 8-26-71
	A Proposal to Search for Very Heavy Strange Particles Using a Small Hydrogen Bubble Chamber. 50K pictures of $\pi^+p$ at 100 GeV in 30".	
#122A	A. A. Volkov (Inst. High Energy Physics, Serpukhov)	Active
	On Investigation of Neutrino Interaction with the 15-Foot Bubble Chamber at NAL.	
#123	Y. S. Kim (Ohio State, Indiana State, Rose Hulman Inst.)	Defer 8-71
	Proposal for a Search for Quark-Matter at NAL.	
#124	H. H. Aly (Southern Ill. Univ.)	Inactive
	The Nature of the Momentum Spectrum of the Secondary Particles from High-Energy Collision.	
#125	D.R.O. Morrison (CERN)	Approved 8-27-71
	Proposal to Study $\pi^-p$ Reactions at 60 and 200 GeV/c in the 30 Inch Hydrogen Bubble Chamber at NAL. 50K pictures of $\pi^-p$ at 100 GeV in 30".	
#126	V. E. Barnes (Purdue)	Withdrawn 4-10-72
	Multiparticle $\pi^-p$ Interactions at 130 GeV/c and at the Highest Energy. Uses optical spectrometer of #2; 200K pictures with negative beam at each of 130 and 300 GeV/c.	
#127	B. Eisenstein (Illinois)	Withdrawn see 154
	A Proposal to Study Slow Secondary Particle Distributions in $\pi^-p$ and $pp$ Reactions in the 30-Inch Bubble Chamber. General survey with bare chamber; total of 200K pictures divided among $\pi^-$ and $p$ at 50, 150 and 300 GeV/c.	



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| #134    | V. P. Kenney  | (Notre Dame)   | Withdrawn<br>8/72    |
|         | Study of Multipion Production in High Energy $\pi^- p$ Interactions at NAL.<br>Bare chamber plus incident beam tagging which this group will provide; 100K pictures at 50 GeV/c, 200K at 150 and 100K at 300 GeV/c. |  |                      |
| #135    | T. Jenkins  | (Case Western Reserve Univ., Northwestern, Univ. of Mass.) | Defer<br>11-71       |
|         | Proposal for an Experiment to Study the Reaction $K^- p \rightarrow \bar{K}^0 n$ at NAL Energies.   |  |                      |
| #136    | W. D. Walker  | (Duke, Toronto, Wisc.)                                     | Withdrawn<br>3-27-72 |
|         | A Study of High Energy $\pi^-$ Nucleon Collisions. $\pi^+$ and $\pi^-$ on $H_2$ and $\pi^+$ on $D_2$ at 200 GeV/c using bare chamber for 20% and spectrometer of #2 for rest: 600K pictures total.                  |  |                      |
| #137    | F. R. Huson   | (NAL, LBL, Univ. of Calif.)                                | Approved<br>8-71     |
|         | Study of $\pi^- + p$ Interactions at High Energy. 50K pictures of $\pi^- p$ at 300 GeV in 30".  |  |                      |
| #138-I  | T. Ferbel   | (Rochester, Michigan)                                      | Approved<br>8-26-71  |
|         | Study of Multiparticle Production in a 30" Bubble Chamber. 50K pix of p-p at 100 GeV in 30".  |  |                      |
| #138-II | J. VanderVelde  | (Michigan, Rochester)                                      | Approved<br>8-26-71  |
|         | Study of Multiparticle Production in a 30" Bubble Chamber. 50K pix of p-p at 400 GeV in 30".  |  |                      |
| #139    | E. Engels   | (Pittsburgh)   | Defer<br>8-71        |
|         | A Measurement of the Electromagnetic Radius of the Kaon and the Difference Between the Pion and Kaon Radii.   |  |                      |
| #140    | D. Garelick   | (Northeastern)   | Rejected<br>11-71    |
|         | Proposal to Study High Mass States of $\pi^\pm$ , $K^\pm$ , $p^\pm$ , with Masses up to 10 GeV.   |  |                      |

		<u>Status</u>
#141A	T. H. Fields (ANL) Study of pp Interactions in the ANL 30-Inch Hydrogen Bubble Chamber at NAL. 50K pix of p-p at 200 GeV.	Approved 8-26-71
#142	R. W. Stoughton (ORNL) Proposal for a Search for Superheavy Elements by Irradiations at NAL.	Defer 8-71
#143	G. Kalbfleisch (BNL) Proposal For a Rapid Systematic Study of All Interactions in a $\pi$ p Exposure of the Bare 30" Chamber at 120 GeV/c. 50K pix of $\pi$ p at 200 GeV in 30".	Approved 8-26-71
#144	S. Ting (MIT, McGill, Carleton, Minnesota) Proposal to Set Up a Tagged Photon Facility and to Survey Induced Reactions in 50-300 BeV Region.	Defer 7-19-72
#145	J. K. Walker (NAL) A Proposal to Study Photon Proton Interactions Between 20 and 250 GeV. Photon-Proton interactions from 20-250 GeV in 30" bubble chamber.	Defer 8-71
#146	J. Hébert (Ottawa, Strasbourg, Frankfurt, Barcelona, Mississippi State, Montreal) A Study of Proton-Nuclei Interactions at Energies Higher Than 100 GeV with Visual Solid Detectors.	Defer 8-71
#147	J. Hébert (Ottawa, Strasbourg) Proposal of an Experiment on the Fission of Very Heavy Nuclei Induced by 200-GeV Protons.	Defer 8-71
#148	K. Ruddick (Univ. of Minnesota) Coulomb Production of Vector Mesons.	Defer 8-26-71
#149	R. Winston (Chicago, Ohio State, ANL) A Proposal for Experimental Research on the Weak Interaction of Hyperons at NAL.	Defer 11-71

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| #150  | J. K. Walker  | (NAL)   | Defer<br>8-71     |
|       | Study of Two Particle Distributions in the<br>Secondaries Produced in Proton-Proton<br>Collisions.<br>Continuation of #63.  |   |                   |
| #151A | G. Snow   | (Maryland, Ill. Inst.<br>Tech.)   | Defer<br>12-71    |
|       | A Study of Neutrino Interactions with Neutrons<br>and Protons Using the 15-Foot Bubble Chamber<br>at NAL Filled with Deuterium.   |   |                   |
| #152  | C. Heusch   | (Univ. of Calif., Santa<br>Cruz)  | Defer<br>7-19-72  |
|       | Proposal to Build an Electron-Photon Facility<br>at NAL, and to Measure Photon Scattering at<br>High Energies.  |   |                   |
| #153  | T. Kitagaki   | (Tohoku Univ.)  | Defer<br>7-19-72  |
|       | Negative Pion - Proton Interactions at<br>200 GeV/c.  |   |                   |
| #154  | I. A. Pless   | (MIT, Brown, Ill., Ind.,<br>Johns Hopkins, IIT, NAL<br>Rutgers-Stevens, Yale) | Approved<br>8-71  |
|       | Test of Proportional Wire Chambers in Hybrid<br>Systems.<br>Feasibility study of proportional chamber<br>hybrid system with 30-inch bubble chamber<br>- - test pictures |   |                   |
| #155  | M. L. Stevenson   | (LBL, Hawaii)   | Approved<br>12-71 |
|       | Proposal to Develop a Phase I External Muon<br>Identifier (EMI) for Use with the NAL 30m <sup>3</sup><br>Bubble Chamber.  |   |                   |
| #156  | K. Niu  | (Univ. of Tokyo)  | Approved<br>9-71  |
|       | Study of Secondary Particles Produced by 200<br>and 500 GeV Protons in Emulsion Chambers.   |   |                   |
| #157  | A. R. Dzierba   | (Cal Tech., LBL)  | Defer<br>7-19-72  |
|       | A Proposal to Study High Energy Diffractive<br>N* Production.   |   |                   |

			<u>Status</u>
#158	R. Sosnowski Proposal to Study High Energy Collisions in the 30" Hydrogen Bubble Chamber.	(Inst. of Nuclear Research, Warsaw Univ.)	Rejected 7-19-72
#159	P. K. Malhotra S. N. Ganguli Study of General Features of Particle Production in p-p Collisions at 400 and 100 GeV. This is a 30-inch proposal.	(Tata Institute)	Rejected 7-19-72
#160	U. Nauenberg Proposal to Search for the Decay Mode $K_S \rightarrow \mu^+ \mu^-$ .	(Univ. of Colorado)	Defer 7-19-72
#161	W. F. Fry Proposal to Survey High Energy Proton Collisions in Neon and to Search for Anomalous Photon Bundles at NAL.	(Univ. of Wisconsin)	Defer 7-19-72
#162	L. G. Pondrom Note on $K_S \rightarrow \mu^+ \mu^-$ Search in the Neutron Hyperon Beam.	(Univ. of Wisconsin)	Defer 7-19-72
#163	W. D. Walker Proposal for a Study of the Interaction of High Energy $\pi^-$ with Neon.	(Duke, Univ. of North Carolina)	Defer 7-19-72
#164-I	Z.G.T. Guiragossian Multi-Gamma-Ray Final States Using a Negative Beam on Hydrogen, Cu and Pb Targets.	(Stanford, Rice, Univ. of Houston)	Active
#164-II	Z.G.T. Guiragossian Deep Inelastic Electron Scattering with a Search for Massive Leptons and Quarks, on Hydrogen, Deuterium, Cu and Pb Targets.	(Stanford, Rice, Univ. of Houston)	Rejected 7-19-72
#165	D. M. Ritson Proposal to Measure Two-Body and Quasi Two-Body Elastic Scattering at Large t-Values and in the u-Channel.	(SLAC, NAL, Northeastern)	Active

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#166	J. R. Ficenec	(VPI)	Defer 7-72
	Study Multigamma and Charged Secondary Topologies Produced by 200 and 500 GeV/c Protons Incident on Neon.		
#167	D. F. Bartlett	(Colorado, NAL)	Active
	"Static" Electric and Magnetic Fields Near the Internal Proton Beam at NAL.		
#168	T. J. Devlin	(Rutgers, Wisconsin, Michigan)	Defer 7-19-72
	Measurement of the $\Sigma^0$ Lifetime.		
#169	P. S. Young	(Mississippi State, Laboratoire de Physique Nucleaire, Instituto de Fisica Corpuscular)	Active
	Proposal for (p,p) and (p,N) Collision Experiments at Batavia by use of Nuclear Emulsion and Electronic Detectors.		
#170	J. E. Pilcher	(Harvard, Wisconsin)	Rejected 7-19-72
	Search for Electromagnetic Production of Fractionally Charged Particles at NAL.		
#171	J. J. Lord	(Univ. of Washington)	Approved 8-72
	Proposed Emulsion Experiment Search for Short Lived Particles at High Energies.		
#172	H. H. Bingham	(Univ. of Calif, Berkeley, Univ. of Washington)	Approved 7-19-72
	Antineutrino Interactions in the 14' H <sub>2</sub> - Neon B.C. 50K pix of $\bar{\nu}$ in neon.		
#173	J. C. VanderVelde	(Univ. of Michigan)	Active
	Proton-Deuteron Interactions in the Thirty-Inch Bubble Chamber. 50K pix of p-d at 200 GeV in 30".		
#174	S.C.C. Ting	(MIT, Carleton, Univ. of Toronto, Univ. of Minnesota)	Defer 7-19-72
	Proposal to Study Electroproduction with Coincidence Techniques at High Energies.		

			<u>Status</u>
#175	S.C.C. Ting	(MIT, Carleton, McGill, Minnesota)	Rejected 7-19-72
	Stage I to Proposal #144 A Simple Spectrometer to Measure Photoproduction of Vector Mesons and Pions at High Energy.		
#176	O. Piccioni	(Univ. of Calif., San Diego)	Defer 7-19-72
	Proposal for an Experiment at the National Accelerator Laboratory Nuclear Levels as Analyzers of High Energy Interactions.		
#177	J. Orear	(Cornell, McGill, North- eastern, Lebedev Physical Institute)	Active
	Early Measurement of 200 GeV pp Large Angle Elastic Scattering.		
#178	W. Busza	(MIT)	Defer 7-19-72
	A Study of the Average Multiplicity and Multiplicity Distributions in Hadron- Nucleus Collisions at High Energies.		
#179	A. R. Erwin	(Univ. of Wisconsin)	Defer 7-19-72
	$K^+$ Multiparticle Production in the 30" NAL Hybrid Chamber at the Highest Possible Energy.		
#180	A. I. Mukhin	(Serpukhov, Moscow, NAL, Univ. of Michigan)	Approved 7-19-72
	A Study of Antineutrino Interactions in the NAL 15-Foot Bubble Chamber, Filled with Hydrogen and Neon. 50K pix of $\bar{\nu}$ in neon.		
#181	A. S. Cary	(Harvey Mudd College)	Active
	The Direct Production of Electron Pairs in Nuclear Emulsion by 100 and 200 GeV Protons.		
#182	G. Gidal	(LBL, Univ. of Calif., Davis)	Active
	A 30" Bubble Chamber Proposal.		
#183	M. I. Tretyakova	(Lebedev Physical Inst.)	Approved 8-72
	A Proposal of the Photoemulsion Experiment at The National Accelerator Laboratory (Batavia)		