A history of the RSC—MJT

Snowmass 1982 In my experience, the first detailed discussion of an experiment with a polarized proton colliders was in an article G. Bunce... M.J.Tannenbaum... T.L.Trueman, et al., in Snowmass 1982, pp489-499. I think that the polarized work was by Gerry Bunce and Larry Trueman—following the original work of Paige, Trueman and Tudron PR **D19**, 935 (1979)—their point being that you could pick out the $W \rightarrow$ di-jets using the parity violating subtraction. Another interesting article at this conference which also related to parity violation was the contact interaction of compositeness by Eichten, Lane and Peskin (see M. Abolins et al, Snowmass '82, pp 274-287) which was 100 % parity violating.

1982-1983 BNL Internal Reports and Newsletters This polarized proton work was continued thuough internal CBA working groups at BNL, with "publications" via BNL internal reports and CBA newsletters (see #4 march 1983 pp 20-22, and #5 April 1983). There was also a polarization working group, organized by Alan Krisch (I believe in conjunction with the Polarized Proton Beam Collaboration at the AGS) and I remember giving a talk to this group on May 14, 1983 entitled "Measuring and using polarized protons at CBA". After the demise of CBA in August 1983, this work stayed on the back burner.

1988 BNL Physics Department "Futures Committee" In 1988, Peter Bond, chairman of the Physics department, organized a committee chaired by Laurie Littenberg to study the "Future of High Energy Physics at BNL". Being a member of this committee, I took the charge literally and pushed for a polar-

ized proton facility at RHIC, which was accepted by the committee which reported in early 1989 and recommended a "Task force on Polarized Protons at RHIC...to include accelerator physicists to come up with a realistic scheme for manipulating and maintaining the polarization. It should include theorists... One would like to lay out the potential physics program and determine what kind of a detector could serve it best."

1989 Aronson appoints task force Pursuant to this recommendation, Sam Aronson—then deputy chairman of the Physics Department—convened a group consisting of G. Bunce, E. Courant, H. Foelsche, S.Y. Lee, T. Ludlam, F. Paige, L. Ratner and M. Tannenbaum to discuss this subject and reported to T. L. Trueman (Associate Director) in March 1989 requesting his input before setting up such a task force. This approval was given and a task force was set up by Sam Aronson in April 1989, with Gerry Bunce and Mike Tannenbaum as the co-leaders. The subject of Polarized Proton Physics at RHIC was also mentioned in the official BNL presentation to the HEPAP Subpanel on Future directions in High Energy Physics in January 1989 (and again in January 1990 and therein lies a story).

May 1989, Satoshi Ozaki returns to BNL The task force was being organized in May 1989, when Satoshi Ozaki came on board and decreed that there should be nothing public (i.e. outside BNL) on "polarized protons at RHIC" until the RHIC project was officially approved (which came in the budget submission of Jan 1990). Gerry Bunce and I had different reactions to being stifled (for me it is the usual situation, but for him it was new, so I'll let him explain his reaction to you) but the sum total was to put the Task Force in the deep freeze.

January 1990, President Bush, S.Y.Lee and E.D.Courant
In January 1990, two significant things happened : President Bush officially put RHIC into the DoE budget, and S.Y.Lee and E.D. Courant figured out how to inject polarized protons into RHIC with the present injection line. The next great milestone occurred in late February, when the agenda for the Hepap subpanel (of 1990) at BNL came out and it was noticed that Satoshi Ozaki was making a presentation entitled "Proton Opportunities at RHIC". I called this to Gerry's attention, and the next thing I knew (2/28/90 at 1100) I was in Ozaki's office attending a meeting with Gerry, Satoshi and Tom Ludlam on unsupressing the polarized task force. This was successful and led up to the Penn State Workshop.

November 1990 Penn State Workshop Polarized Collider Workshop held at Pennsylvania State University, University Park Campus, November 15-17th 1990. Notable attendees include Bunce, **Imai**, Ludlam, Makdisi, Tannenbaum, Underwood, Yokosawa, Heppelmann, Hughes, Krisch, Igo. RHIC Spin Collaboration started by a handshake! (Official start date is Jan 1, 1991).

April 1991 RHIC SPIN Collaboration Letter of Intent Note that H.Enyo, K.Imai, A.Masaike of Kyoto University are original members.

August 28, 1991 first PAC presentation RSC LOI, called RLOI# 10, presented by Gerry Bunce to HENP PAC at BNL along with OASIS, Dimuon, TALES/SPARHC, STAR Letters of Intent. Also, E880, to study "The Effects of a Partial Siberian Snake on Polarization at the AGS", was presented by S.Y.Lee, and approved.

September 1991 STAR approved, three other LOI merged into what becomes PHENIX with Sam Aronson in charge.

November 1991 First RSC meeting at Penn State This meeting to organize a spin proposal at RHIC conflicted with Quark Matter '91—perhaps not the most auspcious start.

December 1991 Tom Kirk, then at ANL encourages Argonne group to join RSC. ANL joins STAR.

January 1992 *Polarized Protons at RHIC* appears in Particle World **3**, 1 (1992).

January 24, 1992 RHI workshop at Riken Sam Aronson presents a paper on "The PHENIX experiment at RHIC".

March 1992 STAR representatives Tom Kirk and John Harris meet with Associate Director Mel Schwartz indicating that they want to make a spin proposal to the August PAC, which precipitates Mel Schwartz to make a general call for spin proposals at the August PAC. The coordinating RSC group is upset at the STAR/PHENIX competition since it feels that a spin program cannot be supported with just one experiment, and urges a combined Accelerator/Phenix/Star Spin proposal. Shoji Nagamiya sets up a PHENIX group of Joel Moss, Hideto Enyo and Mike Tannenbaum to look into this.

September 24, 1992 RSC/PHENIX/STAR at PAC The R5 proposal (PHENIX contact group Enyo, Makdisi and Tannenbaum) is presented by Roser/Enyo/Yokosawa. "The PAC was impressed with the work done but felt that approval would be premature." Mel Schwartz urges cooperation with Mike Harrison of RHIC about the impact of a spin program and to ensure that

spin will not be excluded in the design of RHIC—an external review panel is appointed. Jockeying continues between STAR, who needs money for calorimeter, and PHENIX, with BASIC vs STANDARD, about what can be said about equipment available for spin physics.

Nov 1992 Nagoya RSC Meeting at International Spin Conference.

February 25, 1993 PAC Heppelmann presents the Physics part of RSC to PAC, which is "impressed with the compelling physics" and requests a formal proposal for ONE detector and ONE set of spin rotators. RSC concern about what is learned from Parity Violation in W^- production stimulates new understanding by Bourrely and Soffer.

May 24, 1993 After much convincing by RSC members, Mel Schwartz agrees that a second set of spin rotators is a bargain and accepts a two-rotator/two-experiment spin program if the technical review of polarized protons at RHIC is successful.

June 21,22 1993 Technical Review endorses feasibility "The proposal has the flavor of the application of an ingenious technological invention (siberian snakes) to make possible exciting physics research (polarization physics) reminiscent of the application of stochastic cooling to obtain $\bar{p}p$ beams for W and Z in the CERN SPS."—p.s. that project got the nobel prize, in case you forgot—enthusiastic endorsement!

Summer 1993 Enyo gets married. Other good news is possible new interest in RHIC Spin physics in Japan.

October 14, 1993 PAC Ozaki/Yokosawa/Tannenbaum present R5

update to PAC. Committee is still enthusiastic about potential for spin physics and reiterates approval of our proposal as an essential part of the BNL program... will make every effort to secure the necessary funding from DOE/HEP or elsewhere...

Jan, 1994 Engineering design of helical snake prototype begins based on snake design of Y. Shatunov. BNL Director's Fund support for R&D.

Feb 28, Mar 1, 1994 2nd LANL/RIKEN workshop on Spin Physics with the PHENIX Detector at RHIC. When was the first?

April 1994 Successful polarized proton acceleration in AGS with partial snake, funding from ANL Director's Funds, DOE Accelerator R&D.

September 22, 1994 Joel Moss warms up for the PAC by giving the concluding talk of the Polarization Phenomena in Nuclear Physics 8th International Symposium at Bloomington, IN.

November 3, 1994 PAC for Upgrade Upgrade is approved by PAC but concern is expressed at RHIC policy meeting.

December 1994 Funding for RIKEN/BNL collaboration approved in Japan

June 5-6,1995 External RHIC Spin Review Committee. "Physics is first rate and cost-effective"

Sept 25, 1995 Signing of BNL-RIKEN agreement