

The Director's Corner by Gary White

When 2+2 Doesn't Equal 4, ...Sort of

I never thought I'd see the day when base-3 arithmetic would be appearing in common usage, but it has happened. I'm watching the Astros with my son and he points out that sports reporters commonly refer to a pitcher who hurls for say, two full innings, then strikes out one more batter in the next inning, and then leaves the game, as having pitched 2.1 innings. No, it's true! They may say "2 and 1/3 innings pitched," but 2.1 is how it is written; and if you want to add 2.2 innings pitched yesterday to 2.2 innings pitched today, rather than getting 4.4, you get a total of 5.1 innings pitched. So, 2 and 2 doesn't always equal 4, right? Even more fascinating is that it's base-10 to the left of the decimal and base-3 to the right!

Now if there was one thing in grammar school math class that I was sure would never see any practical use, it was arithmetic in bases other than 10...especially since I hadn't imagined the importance of hexadecimals for computers...but adding in base-3? Who would ever need to know how to do that? Almost anyone who wants to follow the statistics of his or her favorite pitcher, it seems.

I've grown to appreciate baseball more in my adult life than I ever did as an unremarkable first-base kid in Little League, and not only because my wife and son are big fans. In some ways, physics brought me to see the light about baseball (recent scandals notwithstanding). When I was teaching a few years back, I had a semester in which no less than five members of the college baseball team were physics majors or minors, so they plotted to get Robert Adair, author of the classic, *The Physics of Baseball*, to come speak to our SPS chapter. Professor Adair really impressed the group with his discussion of Magnus forces and trampoline effects; one student was inspired to complete a short study about whether a baseball bat's twisting along its axis

could play a role in hitting[1]. It was a great day that brought together quite disparate groups on campus (baseball coaches and fans, physics department members, and other campus administrators) for some unprecedented networking---I still remember it fondly.



A high point of the author's baseball career: throwing out the first pitch with Susan and Toby at the Northwestern State University Demons (a team replete with physicists!) opener in 2001 with Coach John Cohen (far right) providing pointers.

In some ways, that's what's at the heart of Sigma Pi Sigma, connecting physics to the larger community in which it thrives. Recently, more and more Sigma Pi Sigma members have been stepping up to the plate in a variety of ways to offer their contributions to society as a whole, representing the physics community. Many of you participated in the recent cycle of Adopt-a-Physicist, where high school physics students connect with people with bachelor's degrees or higher in physics via online discussion forums at <http://www.adoptaphysicist.org/>. Others have volunteered to serve as on line mentor through MentorNet or an on-line tutors through Tutor.com. In this issue of *Radiations*, you'll find other ways to contribute—writing a "Hidden Physicist" biography so that others can learn from your career trajectory is one way in which you can step up to the plate and contribute to the physics community. If you have found other ways to interweave your physics into the social fabric of your community let us hear about it—we'd love to share the best stories in future issues.

[1] (see Seth LeGrand's abstract at <http://flux.aps.org/meetings/YR99/CENT99/abs/S5605007.html> ; another thorough reference to some very recent physics-of-baseball results can be found at Alan Nathan's site, <http://webusers.npl.illinois.edu/~a-nathan/pob/>)

AMERICAN INSTITUTE OF PHYSICS

American Institute of Physics

The American Institute of Physics (AIP) is a not-for-profit membership corporation chartered in New York State in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of the science of physics and its applications to human welfare. In order to achieve its purpose, AIP serves physics and related fields of science and technology by serving its Member Societies, individual scientists, educators, students, research and development leaders, and the general public with programs, services, and publications—Information That Matters.

The Institute publishes its own scientific journals as well as those of its Member Societies; provides abstracting and indexing services; provides on-line database and e-mail services; disseminates reliable information on physics to the public; collects and analyzes statistics on the profession and on physics education; encourages and assists in the documentation and study of the history and philosophy of physics; cooperates with other organizations on educational projects at all levels; and collects and analyzes information on federal programs and budgets.

The Institute represents approximately 110,000 scientists through its Member Societies. In addition, approximately 5,000 students in more than 600 colleges and universities are members of the Institute's Society of Physics Students, which includes the honor society Sigma Pi Sigma. Industry is represented through 50 Corporate Associates members.

Governing Board

*Louis Lanzerotti (Chair), Lila M. Adair, David E. Aspnes, *Anthony Atchley, Arthur Bienenstock, Curtis G. Callen, *Charles W. Carter, Jr., *Timothy A. Cohn, David M. Cook, *Bruce H. Curran, *Morton M. Denn, Alexander Dickison, Michael D. Duncan, *H. Fred Dylla (ex officio), Janet Fender, Judith Flippen-Anderson, *Judy R. Franz, Brian J. Fraser, Jaime Fucugauchi, John A. Graham, Timothy Grove, Mark Hamilton, William Hendee, *Warren Hein, James Hollenhorst (MAL), Judy C. Holoviak, Paul L. Kelley, Angela R. Keyser, *Rudolf Ludeke, *Kevin B. Marvel, Michael McPhaden, Patricia Mooney, Cherry Murray, *Elizabeth A. Rogan, Charles E. Schmid, Joseph Serene, *Benjamin B. Snavely (ex officio), Gene Sprouse, Hervey (Peter) Stockman, Robert T. Van Hook, Quinton L. Williams (MAL)

* Executive Committee

MAL denotes Member-at-Large

Management Committee

H. Fred Dylla, Executive Director and CEO; Richard Baccante, Treasurer and CFO; Theresa C. Braun, VP, Human Resources; Catherine O'Riordan, VP, Physics Resources; John Haynes, Senior VP, Publishing; Benjamin B. Snavely, Corporate Secretary

Member Societies

American Physical Society
Optical Society of America
Acoustical Society of America
The Society of Rheology
American Association of Physics Teachers
American Crystallographic Association
American Astronomical Society
American Association of Physicists in Medicine
AVS—The Science & Technology Society
American Geophysical Union

Other Member Organizations

Sigma Pi Sigma, Physics Honor Society
Society of Physics Students
Corporate Associates