

Antol the Mathematician

If there is anyone who could return to campus to talk with undergraduate students about the love of mathematics coupled with the understanding that there is life outside mathematics, and the vast opportunities expressed by the intersection of these two things, it would be IBM senior software engineer and ISU alumnus Robert Antol (MATH '78).

biology. Early on, his advisor, Dr. Alan J. Heckenbach, recommended that he consider a minor in computer science. Antol had little interest in computer science, but he planned to stay on for his Ph.D. degree so he carved a space for it in his studies.

Although Antol intended to join the ISU faculty, in his senior year he joined

other undergraduates in participating in campus career fairs. When the IBM representative invited him to come interview in a town with a funny name – Fishkill – Antol decided that he had nothing to lose by accepting the free trip to New York. But in Fishkill, he was not prepared for the starting salary IBM offered: more than his ISU mentor Heckenbach made after working ten years.

Antol returned to campus a bit bewildered. Seeking guidance, he listened to Dr. Heckenbach reason,

“Why don’t you go; if you don’t like it, come back.”

Thirty-one years later, Antol remains at IBM, working in an area called EDA (Electronic Design Automation) where, he writes, “Our mission is to develop, deliver and support working EDA flows through development of EDA tools and methodologies that give IBM microprocessor and Application Specific Integrated Circuit designers a competitive market advantage by providing unique function, improved turn-around-time, improved quality and/or lower cost of design for chips. Some of the chips designed with our system are now in the Wii® and Xbox® game systems.”

Does he play Wii® and Xbox®? Laughing, he acknowledges that he does not.

“If you were a carpenter building a house, you would need tools like a saw,

“Mathematics is my whole life and being. I used to sign up for every math class I could in college. The college, knowing my intent to continue studies, wrote me a letter advising me to take more English and history.”

hammer and screwdriver – without them you would be unable to build the house,” Antol explains. “Wii games contain chips – they are manufactured in Fishkill. To build chips you have to come up with the design; engineers need tools to design the chip – tools that take into account timing, power consumption and voltage – and they use tools my group makes. Depending on the type of chip, whether it’s for a game, ATM or camera, each feature different flows and have a different set of requirements.”

Reflecting on his professional life experience, Antol recycles the same direction he received from Heckenbach all those years ago: “Make a simple decision; try it, take a risk. Eventually find what it is you want to do for the rest of your life.”

His own willingness to leave academia to experiment with life in industry has meant a great deal of job satisfaction for Antol, who finds it “kind of cool” to see what products are coming.

“There is a working world out there; you have to become a member of it,” Antol will tell the students this coming October. “Be prepared now.”



This image commemorates Antol being the second recipient of IBM’s “I Innovate” award. Why is he holding a cheese grater? And why does he have 4 of them in his office? Ask him when he visits campus in October.

When he visits in the Fall (October 8), he plans to encourage students to entertain any possible job opportunities, to make sure they have an appropriate minor, and to realize that industry will see them as a larger person than just a person who understands math.

Antol first arrived on campus in 1974 with interests in biology, entomology and mathematics. Needing to concentrate on a single subject, his fascination with mathematics won out, although he continued to take courses in botany and

Only two people in ISU history have won the Pi Mu Epsilon Richard V. Andree award; Antol was the first recipient for his paper, *The Perfect Numbers and Pascal’s Triangle*. Originally written while a senior in high school, the piece was published in the *Pi Mu Epsilon Journal* (Spring 1978, Volume 6, Number 8, page 45).



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Antol the Astronomer

Five feet below ground, a 5' x 5' x 16" concrete slab embedded in the earth offers unwavering support to a concrete pier two feet in diameter and 17' high. An electro-mechanical telescoping Pier-Tech 2 is mounted atop the concrete pier; attached to the Pier-Tech 2 is the Paramount ME Robotic Mount with a Meade 8 inch LX50 Schmidt-Cassegrain telescope. Built around the stacked pier, with no part of the structure making contact with the pier at any point, is a 16' diameter Ash-Dome that, while isolated from, is attached to Antol's home.

Constructed in 2005, it took four months from groundbreaking to first light; that is, Antol explains, "The point in time when you look through the telescope and see first light." The internal temperature of the dome is the same as the outside temperature. Heating or cooling current eddies distort visual observation as well as any images captured here.

It is here that stargazers Bob and Barb Antol observe the heavens with the push of a button.

Bob was ten years old when his parents bought him and his brother their first cardboard telescope, where they peered at a magnified Saturn and the moon. By age 14 he was lining up a telescope on a tripod with a 35 mm camera to photograph astronomical objects. Through the telescope at 4:00 a.m. Antol would shoot Comet Bennett in the early morning sky. Soon he started taking pictures of constellations, the moon and the sun. "The equipment got more expensive as we got older," he recalls.

Bob met his wife Barb, also a mathematician, when she came to work at IBM two years after he arrived. The couple used to go out on the deck where Bob taught Barb about the sky, and she became fascinated with it. "It used to be a bunch of points to her," Antol said. "Now it makes more sense."

In those days stargazing involved hoisting a 38-pound telescope, tripod and 33 pounds of equipment, lining it up, situating it in the same spot to observe before breaking it all down and putting it back.

When they decided to construct the observatory, Bob worked with the architect to design the height in the upstairs room to allow gazers of all sizes

to comfortably view objects both near the horizon and straight overhead.

The telescoping Pier-Tech 2 offered a perfect solution to these design questions, allowing the observer to raise and lower the pier by a push of a button. The precision vertical adjustment keeps the telescope polar aligned and level while keeping the target within the field of view.

The Antols do more observing now because it is so convenient. The telescope is aligned with the earth's tilt; a special equatorial mount enables viewers to track stars. The mount knows how fast and far to move. "It is incredibly accurate," Antol says, explaining that it can track the space station or shuttle in addition to stars.

Currently they are in the process of upgrading to a 14.5" RCOS Ritchey-Chretien telescope and purchasing an astro camera that will connect to the telescope. Antol's next project involves photographing deep sky objects such as nebula, globular clusters and galaxies.

Observatory visitors, like the recent troop of Girl Scouts, sign a guestbook, noting the time of the visit and offering a comment. This year they expect to host their 200th visitor.

In a presentation to colleagues at work, who enjoy learning about one another's hobbies, Antol told them, "Though solar viewing is fascinating, nighttime is the ideal time to observe, and winter is best because it is darker longer and the sky is crystal clear. Summer humidity interferes with perfect pinpoint viewing.

Exterior and interior shots of Stargate 4173 at Grimaldi Tower. Curious about the name? Want to learn more? Visit <http://www.stargate4173.com/>



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