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By [Deborah Scoblionkov](#) | Also by this reporter

03:00 AM Mar, 08, 1999

WASHINGTON -- "What's going to be the next big thing after micro-processors?" That's what curious high school seniors wanted to know

of Marcian "Ted" Hoff, co-inventor of the microprocessor.

"Well, there's still a long way to go in this field," replied Hoff. "There are limits to silicon. As the circuitry gets smaller, eventually the noise will overpower the sound -- but that's a long way off."

Not *so* far off. Two of the students in Friday night's Q&A session -- 18-year-old [David Moore](#) and 17-year-old [Alexander Wissner-Gross](#) -- had already conducted sophisticated research on nano-technology that theoretically could create electronic circuitry one-millionth of its current size, which is expected to become standard when silicon becomes obsolete.

Other audience members had advanced-level, even ground-breaking, research projects in computer science, physics, biology, astronomy, mathematics, and marine biology.

Obviously, this was no ordinary group of high school students. The finalists for the Class of 1999 [Intel Science Talent Search \(STS\)](#), they're touted as America's brightest students. Formerly the Westinghouse STS, this annual high school science competition is the world's oldest and most prestigious. Founded in 1942, it boasts among its alumni five Nobel Laureates, five Fields Medallists, and nine MacArthur Foundation Fellows.

This year, 18 female and 22 male finalists, from 14 to 18 years old, traveled to Washington to compete for scholarships worth up to US\$50,000.

The week-long Science Talent Institute includes receptions, meetings with Congressional representatives, presentations, and a grueling evaluation of their science projects.

"We're like baseball scouts looking at how well a player performs," explained judge Dr. Richard Gott, a professor of Astrophysics at Princeton University and a second-place winner in the STS class of 1964. "We look at the creativity, importance and difficulty of these projects --things that would indicate whether this person will be a good scientist in the future."

The winners will be announced at an awards ceremony Monday night, and the top three will be flown to New York for a round of media appearances and interviews.

Hoff, who delivered the keynote speech, was Top 10 STS winner in the class of 1954. Coincidentally, he's also a former executive at Intel, the event's new sponsor.

The competition for title sponsorship of the STS was nearly as fierce as the talent search itself. When Westinghouse announced that after 57 years it would no longer sponsor the STS, [Science Service](#), the nonprofit organization that administers the program, was besieged with offers from dozens of companies from around the world.

Tracy Koon, director of corporate affairs at Intel, described the response from the top honchos at the giant microchip manufacturer when she approached them with the prospect of STS sponsorship.

"They told me to 'Go get it,'" Koon recalled.

Ann Korando, director of development and public relations for Science Service, met with representatives from each of the 76 companies who submitted sponsorship proposals. A few even offered to contribute more than the \$1.2 million required, but according to Korando, "that didn't matter, what was important was maintaining the integrity of the program."

Ultimately, Intel prevailed because "it could bring us into the 21st century and keep us in touch with what is happening in the world of technology," said Korando. As an example, she noted the popularity of the Intel-sponsored Web Center, stocked with Pentium III computers.

"Perhaps next year they could replace the Windows software with Linux," commented Wissner-Gross, of Great Neck, New York, who speaks ten different computer programming languages as well as Latin. His research paper, "Rapid Granular Fabrication of Nanocircuitry: Modeling a Novel Process for the Macroscopic Control of Extended Nanoscopic Fullerene Structures," explored the use of fullerene (or buckyball) molecules to create highly conductive tubes. Wissner-Gross plans to attend MIT in the fall. Among his classmates will be [Natalia Toro](#), of Boulder, Colorado, who at 14 is this year's youngest finalist. She focused her research on neutrinos, "the smallest and least understood of all known fundamental physical particles." Toro, who skipped three grades, first studied physics and took her first college-level mathematics course while still in elementary school. Her project provided evidence for the theory that neutrinos have non-zero mass, "a result with profound implications for the standard model of particle physics."

Many of the projects grew out of personal experiences. As a child, [Diana Townsend-Butterworth](#) of New York watched her grandmother's health and mental state deteriorate as a result of Alzheimer's disease.

She vowed that she would one day "do something so that no other granddaughter would have a grandmother who forgot her name." Her project studied the effects of common household pollutants on functions that may be related to the neurodegeneration of Alzheimer's. Townsend-Butterworth plans to continue her research at Harvard University.

[Carol Fassbinder's](#) family raises bee colonies in Iowa. When mites threatened to devastate the bee population in her state, she developed an organic toxin that kills the mites but doesn't harm the bees. The student council president runs a small beeswax candle business on the side and plans to attend Iowa State University to study entomology.

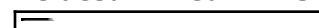
[Seth Ament's](#) project involved observing and filming the sexual behavior of cuttlefish, a study that includes hours of high-resolution digital video footage. He's used to his classmates' jokes that his films are pornographic.

"The truth is this is serious research," said Ament of Fallmouth, Massachusetts. "The theory of sperm competition is of growing importance. It's a shame that many people can't get beyond the idea that it's just another sex thing."

[James "Jimbo" Hansen](#) of Silver Spring, Maryland, said he hopes his physics project will earn him a guest appearance on David Letterman.

"I really wanna be a rock star," he confessed, "but if that falls through I guess that being a theoretical nuclear physicist will have to do."

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