

Intel Science Talent Search

Intel Science Talent Institute 2007

March 8-13, 2007

The Intel Science Talent Search (Intel STS), America's oldest and most highly regarded pre-college science competition, provides an incentive and an arena for U.S. high school seniors to complete an original research project and have it recognized by a national jury of highly regarded professional scientists. The projects are a result of inquiry-based learning methods designed to nurture critical reasoning skills, experience science through the use of the scientific method and to demonstrate how math and science skills are crucial to making sense of today's technological world and making the best decisions for tomorrow.

The 40 Finalists of the Intel Science Talent Search 2007, who will be competing for \$530,000 in scholarships, represent about 2.3 percent of those who completed entries in this scientific and educational competition. These 20 females and 20 males are awarded an all-expense-paid trip to Washington, D.C. to attend the Intel Science Talent Institute, March 8 -13, 2007. Each Finalist who participates in the Intel Science Talent Institute will receive an Intel® Core™2 Duo processor laptop computer and a scholarship of at least \$5,000. Ten of the Finalists will be selected by the board of judges to receive one of the following four-year scholarships: First Place: \$100,000, Second Place: \$75,000, Third Place: \$50,000, Fourth - Sixth Places: \$25,000, and Seventh - Tenth Places: \$20,000.

The Finalists are 16 to 18 years of age and come from 38 schools in 20 states. Chosen from among 1705 entrants, they submitted a report on their scientific research, the official entry form and supporting documents. Completed entries were received from 46 states, the District of Columbia, Puerto Rico, and five overseas schools. *Finalist ages in this publication are as of March 13, 2007.*

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INTEL SCIENCE TALENT SEARCH

“Finding Tomorrow’s Scientists”

History

Created in 1942 by Science Service, one of the most respected non-profit organizations advancing the cause of science, as a means for encouraging talented high school students to pursue a career in science, math, engineering and medicine, the Science Talent Search has become an American institution.

The Science Talent Search has recognized over 2500 finalists with more than \$5 million in scholarships. Alumni of the STS include more than 100 recipients of the world’s most coveted science and math honors including three National Medal of Science winners, ten MacArthur Foundation Fellows, two Fields Medallists and six Nobel Laureates.

In 1998, Intel Corporation was named the new title sponsor of this storied competition that was formerly sponsored by the Westinghouse Foundation. Intel has reinvigorated the STS and has increased the program’s annual awards and scholarships from about \$200,000 to \$1,250,000.

Awards and Scholarships

Semifinalists Each of the 300 students named a semifinalist in the Intel STS will receive a \$1,000 award for their outstanding science research. These awards will be mailed to the semifinalists after the Science Talent Institute (STI) in the Spring.

Schools Each school will receive an award of \$1,000 for each Semifinalist named in the Intel STS. The award must be used to further support excellence in science, math or engineering education at the recipient school. In the case of home schooling, the awards will be given to the affiliated school or school district of the home school. The award will be mailed to the school after the STI in the Spring.

Finalists The top prize will be a \$100,000 four-year scholarship. The second place finalist will receive a \$75,000 scholarship and the third-prize winner will go home with a \$50,000 scholarship. Fourth- through sixth-place finalists each receive a \$25,000 scholarship; seventh- through tenth-prize winners will receive a \$20,000 scholarship. The remaining 30 finalists will receive a \$5,000 scholarship award. In addition to the scholarship awards, each of the finalists participating in the Science Talent Institute will receive an Intel® Core™2 Duo processor laptop computer.

The Process

Each year, over 1600 seniors enter the Intel Science Talent Search. Each completed entry consists of the student’s written report on their scientific research, the lengthy official entry form that elicits evidence of student creativity and interest in science, and supporting documents from schools, advisors, mentors.

All Intel Science Talent Search entries are reviewed and judged by top scientists from a variety of different disciplines. The top 300 entrants are selected as semifinalists, and from these 300 semifinalists, 40 finalists

are chosen to attend an all-expense-paid trip to Washington, D.C. to the Intel Science Talent Institute (STI), where they will undergo final judging. On the basis of a rigorous round of interviews, 10 top scholarship winners are selected.

While in Washington, DC, students meet leading scientists and visit places of historic and political importance. Past winners have met with the President and First Lady, the Vice President and distinguished science advisers. The young scientists display their prize-winning exhibits at the prestigious National Academy of Sciences, where they describe their research to thousands of visitors—many of them important figures in governmental and scientific communities. Many others studying the exhibits are highly motivated students who are planning to enter the Science Talent Search in their senior year.

While the purpose of the Intel Science Talent Institute is the science competition, the students say they most value the opportunity to meet and interact with their scientific peers, often for the first time. Friendships and professional associations made during the Intel STI week continue through and beyond college.

State Representation in the Science Talent Search Since 1942

Since 1942, New York State has produced more finalists than any other state, accounting for 888 or 33%. California, 190; Illinois, 161; Pennsylvania, 103; Florida, 97; Maryland, 94; New Jersey, 87; Virginia, 85; Massachusetts, 83; Ohio, 82; Texas, 62; Wisconsin, 51; and Indiana, 47.

Other states with impressive results include Michigan, 43; Connecticut, 41; Oregon, 38; Minnesota, 34; Georgia, 28; Colorado, 26; Oklahoma, 25; Arizona, 24; District of Columbia, 21; Missouri, 21; Washington, 21; Nebraska, 19; Alabama, 19; Iowa, 18; Tennessee, 18; West Virginia, 19; New Hampshire, 19; Montana, 16; New Mexico, 16; North Carolina, 15; Hawaii, 14; Kansas, 14; Louisiana, 12; and Mississippi, 10.

Intel Corporation

Intel understands that education is critical to each citizen's ability to compete, and is committed to preparing all students, everywhere, with the skills required to thrive in this knowledge economy. As a company rooted in technological innovation, Intel's \$100 million annual investment in improving education around the world is fueled by its commitment to the next generation of innovators. Through programs such as the Intel Science Talent Search, Intel works to engage young people around the world in the building blocks of technical innovation – science, math and engineering.

To learn more about the Intel® Education Initiative, please visit www.intel.com/education.



Sarah Dana Bayefsky-Anand
The Abraham Joshua Heschel School

NEW YORK

Sarah Dana Bayefsky-Anand, 17, of **New York**, entered the Intel Science Talent Search with a **zoology** project based on research she performed in Israel's Negev Desert on the European free-tailed bat. Depending on the situation, these bats vary their call features to maximize their hunting success. Sarah's research included recording the echolocation calls of these wild free-flying bats, selecting the recordings of the calls she needed for her work, analyzing the calls, and then studying the data generated from the analysis. She concluded that during "social buzzes" and "feeding buzzes," the bats progressively shorten the duration and interpulse intervals of their calls. She has studied bats for four years, and her earlier work has been published in peer-reviewed journals. At **The Abraham Joshua Heschel School**, Sarah captains the volleyball team and is founder and president of its current events club. Born in Canada, she is fluent in French and spent one summer cataloguing fossils at the National Museum of Natural History in Paris. In her spare time, Sarah enjoys tap-dancing and singing. The daughter of Raj Anand and Anne Bayefsky, she hopes to study biology and become a field biologist or physician.



Megan Marie Blewett
Madison High School

NEW JERSEY

Megan Marie Blewett, 17, of **Madison**, entered the Intel Science Talent Search with a **medicine and health** project that is the biochemical phase of a multi-year effort focused on multiple sclerosis (MS) and potentially related diseases. Through five years of geo-spatial statistical research, she had discovered significant geographic overlap between populations with MS and amyotrophic lateral sclerosis (ALS) and wanted to find a biochemical basis. She chose to study a protein, neuregulin-1 (NRG1), thought to be a susceptibility gene for these disorders. By using small molecule microarray analysis, she discovered five candidate ligands (compounds that bind with the target protein), whose structures could help elucidate NRG1 isoform (protein derivative) function and aid in designing better therapeutic options. The Broad Institute of Harvard and MIT, where her experiments were conducted, is using her preliminary results to launch additional studies. A frequent award winner, Megan plays varsity tennis at **Madison High School**. She studies Mandarin Chinese, plays in a flute orchestra and has a brown belt in karate. The daughter of Drs. Charles Blewett and Margaret Kilduff, she hopes to attend Harvard or MIT.



Oren Brecher
Suffern High School

NEW YORK

Oren Brecher, 17, of **Suffern**, studied changes in areas of the brain that allow for perceptual learning for his Intel Science Talent Search project in **behavioral and social sciences**. Perceptual learning is an increase in a person's ability to understand commonly seen visual stimuli, and it is vital to understanding the visual environment. In his research, Oren used a functional MRI to measure brain activity in six human subjects while they observed new, or previously seen, displays of motion. By comparing brain activity across the learned and unlearned displays, he concluded that the brain achieves perceptual learning for visual motion by neural amplification in two specific regions specialized for the perceptual process: the medial temporal area and the inferior parietal lobule. A starting lineman on the varsity football team, he has been an award-winning varsity wrestler at **Suffern High School**. Oren plays a wide range of instruments including guitar, bass, banjo, trumpet and piano, for which he has composed music. The recipient of numerous honors, Oren is the son of Meir and Barbara Brecher. He hopes to attend Harvard or Cornell and pursue a career in neurobiology and medicine.



Gregory Drew Brockman
Red River High School

NORTH DAKOTA

Gregory Drew Brockman, 18, of **Thompson**, submitted a **mathematics** project to the Intel Science Talent Search in which he studied the set of Ducci sequences, also known as the four-number game. To play the game, start with a sequence of four numbers a, b, c, d , and replace it with the sequence $|a - b|, |b - c|, |c - d|, |d - a|$, and go again. Greg considered the game in which a, b, c and d are real numbers. He described the asymptotic behavior of this game and of its higher dimensional analogues. In many instances the sequence converges to, and often arrives at, all zeroes. At **Red River High School** in Grand Forks, Greg is first in his class of 298. Involved in the math, science and Latin clubs, he has earned local, state, regional and national awards for his achievements. He was one of four American students who attended the 2006 International Chemistry Olympiad in South Korea, where he earned a silver medal. Greg enjoys Ultimate Frisbee, snowboarding, and is a black belt in Tae Kwon Do. The son of Dr. Ronald Brockman and Dr. Ellen Feldman, he plans to study at MIT or Harvey Mudd College and pursue a career as a math or physics researcher.



Sophie Cai
Ridgefield High School

CONNECTICUT

Sophie Cai, 16, of **Ridgefield**, investigated a novel technique for studying how information is processed by the human visual system for her **behavioral and social sciences** project in the Intel Science Talent Search. She believes her findings may have implications in real world visual searches like baggage and x-ray screenings. For her study, Sophie collected and analyzed data resulting from four 200-trial computer-based experiments, with twelve participants and two different visual searches. Each search was split into 67-millisecond exposures, and in between, participants rated their response confidence. By tracking their ability to differentiate between targets and distractors over time, in both low-contrast feature and spatial configuration searches, she was able to identify the visual recognition mechanism as serial rather than parallel processing. Sophie, first in her class of 415 at **Ridgefield High School**, is editor-in-chief of the school paper and vice president of the debate team. She has won numerous awards in academic and piano competitions and has perfect SAT scores. The daughter of Dr. Christopher Chunsheng Cai and Gloria Hong Chien, she hopes to continue her studies at Harvard or MIT.



Emma Kathryn Call
Baltimore Polytechnic Institute

MARYLAND

Emma Kathryn Call, 18, of **Baltimore**, entered the Intel Science Talent Search with an **engineering** project focused on the fabrication of bioabsorbable three-dimensional (3D) microcontainers/microcubes for use in specific cell encapsulation and as chemical delivery vehicles. She developed a novel fabrication strategy to create hollow 3D cubes from two-dimensional (2D) precursors. Utilizing microengineering techniques, she fabricated a nickel-based 2D precursor with both solder- and polymer-based hinges. When the hinge is heated, the precursor folds into the 3D container in a self-assembly process that resembles origami on a microscale. To overcome bio-incompatibility, polymer hinges were used for microcube assembly in the presence of mouse fibroblast cells. This suggests the possibility of fabricating microcubes loaded with biological cells or drugs. Emma believes these tiny cubes can be used for tissue replacement and to treat diseases such as diabetes. She has authorship of two peer-reviewed papers and various abstracts, and is captain of the swim team at **Baltimore Polytechnic Institute**. The daughter of Jeffrey and Diana Call, she hopes to attend Case Western Reserve or Johns Hopkins.



Natalie Avella Cameron
W. Tresper Clarke High School

NEW YORK

Natalie Avella Cameron, 17, of **Westbury**, studied the effects of instructional intervention regarding teacher ambulation (walking around in the classroom) and student seating position on student on-task behavior, achievement and motivation for her Intel Science Talent Search project in **behavioral and social sciences**. Natalie recorded experimental and control group classroom sessions on videotape, sampled the data and analyzed it using three research methodologies. She believes her findings show that teacher ambulation had a positive effect on the learning environment, student on-task behavior, achievement and motivation. She also found that students who sat in the front and center of the room scored higher on achievement tests and were more on-task than those who sat in the back or sides, however, students in the rear were more motivated. Natalie is an accomplished flutist and has studied dance at the Alvin Ailey school. The daughter of Douglas Cameron and Dr. Jane Avella, she is first in her class of 210 at **W. Tresper Clarke High School**. Natalie hopes to attend Columbia or Princeton and dreams of owning a facility where she can treat patients using her knowledge of medicine, music and dance.



Yieu Chyan
Texas Academy of Mathematics & Science

TEXAS

Yieu Chyan, 17, of **Denton**, researched ways to increase the solar energy conversion efficiency of organic photovoltaic (PV) devices for his Intel Science Talent Search project in **chemistry**. His studies chemically combined semiconductor nanoparticles within a conductive organic polymer network and demonstrated a small, but unmistakable, photoresponse. This combination yielded a polymer film hybrid that may be more practical and cost efficient to manufacture than current silicon-based PV devices. Yieu plans to further optimize the morphology of his thin hybrid films, which may lead to a smoother and more uniform dispersion of particles and more robust films for solar energy conversion. Yieu is a student at **Texas Academy of Mathematics & Science**. An accomplished violinist and pianist, he composed and conducted an award-winning piece for a Texas Music Teachers Association contest. He volunteers regularly as an attorney at the Denton Teen Court and participates in a 15 piano ensemble in the summer. The son of Dr. Oliver Chyan and Dr. Jin-Jian Chen, Yieu plans to attend MIT or Washington University at St. Louis and hopes to earn a doctorate in biochemistry.



Alexandra Maria Courtis
Davis Senior High School

CALIFORNIA

Alexandra Maria Courtis, 17, of **Davis**, entered the Intel Science Talent Search with a **chemistry** project about the novel synthesis of silicon nanoparticles (quantum dots) that may help physicians track biological processes and diagnose cancer. Alexandra believes that when these non-toxic nanoparticles are injected into the bloodstream, they attach to blood cells and brightly photoluminesce, creating clearer MRI images than those currently generated using dye molecules. By creating a novel and cost-efficient synthesis of water soluble, non-toxic nanoparticles terminated with organic ligands, she developed a potentially powerful new tool for tumor detection and imaging. Alexandra has presented findings from her two-year project at meetings of the American Chemical Society and to the National Science Foundation, even explaining her results in French to European scientists. After graduating from **Davis Senior High School**, Alexandra plans to enter Harvard or Yale. She plays piano and enjoys varsity tennis, Oxford debate and dancing, and heads the student chapter of Amnesty International, promoting awareness of African child soldiers. Alexandra is the daughter of John and Dr. Maria Courtis.



Neha Anil Deshpande
South Brunswick High School

NEW JERSEY

Neha Anil Deshpande, 17, of **Monmouth Junction**, hopes that her Intel Science Talent Search **zoology** research project studying *subito* and *pavarotti* genes in *Drosophila melanogaster* (fruit flies) will one day lead to the end of birth defects in human infants. Neha created hybrid *subito-pavarotti* genes, injected them into the fruit flies and researched the role they play in meiosis – cell division necessary for reproduction. She also designed innovative gene therapy experiments to rescue lethal and sterile fruit flies. Because these genes have human equivalents, she believes her study can lead to the creation of a medication or nutritional supplement to prevent genetic disorders such as Down syndrome. Born in India, Neha recently received a diploma in Bharatnatyam, Indian classical dance. She attends **South Brunswick High School**, where she is president of the Medical Futures Club and the French Honor Society. Neha serves as chairman of the Central Jersey Youth Council for the March of Dimes and has received numerous awards for her volunteer efforts. She hopes to attend Johns Hopkins or Columbia and eventually earn an M.D./Ph.D. Neha is the daughter of Anil and Savita Deshpande.



Kaitlin Duncan
Plainedge High School

NEW YORK

Kaitlin Duncan, 17, of **Massapequa**, studied the effects of demographic variables on annual school budget referenda for her Intel Science Talent Search project in **behavioral and social sciences**. After her district's proposed school budget failed to pass, the resulting community uproar inspired Kate to compare support for specific programs to demographic variables. She distributed an Internet survey to residents of her school district to gather information that included age, gender, education and number of children, as well as interest in supporting full-day kindergarten, programs to improve test scores, extracurricular activities and AP programs. As hypothesized, Kate found that budget referendum success was related to specific demographics. Her efforts suggest the importance of addressing the proper sector within a community when determining school budgets; by understanding what is valued highest to the district residents, a budget might be customized to win support. A student at **Plainedge High School** in North Massapequa, Kate is an avid dancer. The daughter of Kevin and Susan Duncan, she plans to attend Boston College or Columbia.



Marshall Bradley Everett
Shoals Christian School

ALABAMA

Marshall Bradley Everett, 18, of **Florence**, entered the Intel Science Talent Search with a **behavioral and social sciences** project that tested the Theory of Rational Behavior for accuracy and to see if gender, age, intelligence, risk aversion and concern for fairness affect how closely a person adheres to the Theory. The Theory states that a rational person will choose the strategy that will benefit him or her the most when playing a game. Using surveys, the Ultimatum Game and a risk aversion game, Marshall studied two groups, each with 100 human subjects. For one study group he also used ACT scores as a measure of intelligence. His findings suggest that gender, age and risk aversion do not affect rationality, but that intelligence and concern for fairness do, and question the value of the Theory to economists who depend upon it to predict behavior. The son of Jack and Allene Everett, Marshall attends **Shoals Christian School**. He is president of the student government, a member of the show and chamber choirs and captain of the math team. Committed to service, he has been on several mission trips and volunteers with many organizations. He hopes to attend Princeton or Stanford and own a real estate development business.



Kathryn Blair Friedman
The Chapin School

NEW YORK

Kathryn Blair Friedman, 18, of **New York**, entered the Intel Science Talent Search with a **medicine and health** project that may help physicians diagnose peanut allergies more accurately. Katie has outgrown her own peanut allergy but is still sesame allergic. Knowing that peanuts are a leading cause of anaphylactic shock and that many people who are allergic to peanuts react similarly to sesame, Katie used microarray immunoassays and protein fraction separation to investigate the causes of allergic antibody cross-reactivity between peanuts and sesame. Her results suggest that primary responsibility for the allergic antibody cross-reactivity is the order of the amino acids in the peanut proteins, rather than the shape of the proteins. She believes antibody binding tests may lead to more accurate peanut allergy diagnoses. Katie is the daughter of Robert Friedman and Dr. Elissa Gretz-Friedman and will attend Williams College before entering medical school. At **The Chapin School**, Katie participates on the varsity soccer, tennis and lacrosse teams, and teaches tennis and piano. In her spare time, she is a tournament-level tennis player and a long-time volunteer at Mount Sinai Hospital.



Daniel Adam Handlin
High Technology High School

NEW JERSEY

Daniel Adam Handlin, 18, of **Lincroft**, entered the Intel Science Talent Search with a **space science** project that demonstrated an accurate, low-cost method of optically determining the position of geostationary Earth-orbit (GEO) satellites. In his study, he simultaneously used two amateur-class, widely separated, networked telescopes, and was able to calculate altitude results for GEO satellites that are identical to that of a state-of-the-art \$20-\$30 million radar system with an error of less than 0.1 percent. He believes his optical tracking method could yield better computer models for orbiting spacecraft, leading to longer satellite life, reduced costs and more accurate determination of where a terminal-phase satellite will fall to earth. Dan attends **High Technology High School**, where he is co-captain of the academic team, was founder of the school's Consortium Model UN Club and edits the astronomy club newsletter, *Spectrogram*. Dan has perfect SAT scores and has earned many science competition and astronomy awards. The son of Drs. David and Amy Handlin, he hopes to attend Harvard or MIT and pursue a career in his long-term interests, astrophysics or aerospace engineering.



Temple Mu He
Troy High School

MICHIGAN

Temple Mu He, 18, of **Troy**, studied the cause of low states of x-ray emission in cataclysmic variables (CV) hoping to improve our understanding of CVs and other x-ray binary stars for his Intel Science Talent Search project in **space science**. CVs are binary star systems with a white dwarf star (the primary) and a low mass star (the secondary). As matter flows from the secondary onto the primary in a magnetic CV, x-rays are produced. During low states, x-ray emission from the secondary rapidly decreases. Temple analyzed data from the *Chandra* X-ray Observatory showing low states for CV X10 in 2005 and created a mathematical model that suggests the magnetic interactions between the secondary's starspots, regions of reduced brightness that form at the poles and migrate toward the equator, and the primary can decrease x-ray production and cause extended low states. Temple, an award-winning violinist and pianist, is fluent in Chinese. An advocate for the nascent biology club at **Troy High School**, he plans to study physics or biophysics at Princeton or MIT. Born in China, Temple is the son of Yuanzhan He and Wendy Gang Wu. Temple hopes to become a professor and foster "humanity's spirit of curiosity."



Jimmy Hom
Syosset High School

NEW YORK

Jimmy Hom, 18, of **Syosset**, studied the role of ring canals and the macrophage receptors (proteins) Croquemort (CRQ) and Draper (drpr) in recognition and clearance of dead oocytes (immature eggs) from the ovaries of *Drosophila melanogaster* (fruit flies) for his Intel Science Talent Search project in **zoology**. Jimmy starved fruit flies to trigger oocyte apoptosis (programmed cell death), dissected the flies' ovaries and studied the concentration of CRQ and drpr. He found that CRQ increased in expression but drpr did not, and that flies without drpr were sterile. He concluded that these proteins helped follicle cells engulf and clear dead oocytes. He also found that ring canals, which transfer material from nurse cells to oocytes, closed and deteriorated during oocyte death. Jimmy attends **Syosset High School** where he is editor-in-chief of the yearbook and is active in Model Congress and the Latin Honor Society. A cello student at Juilliard, he has performed at Carnegie Hall and Lincoln Center. Jimmy volunteers with the Helen Keller National Center for the Deaf and Blind. He plans to attend Harvard or Yale and become an obstetrician or cardio-thoracic surgeon. He is the son of Chung and Soona Hom.



Daniel Scott Katz
Hebrew Academy of the Five Towns & Rockaway

NEWYORK

Daniel Scott Katz, 18, of **Lawrence**, developed a novel way to produce folate-coated platinum nanoparticles and studied how they destroyed cancerous cells while sparing healthy cells for his **materials science** Intel Science Talent Search project. Daniel used a single-step room temperature synthesis procedure to create the nanoparticles. In his nanotherapy approach, cancerous cells, which require high concentrations of folic acid, are “tricked” into absorbing the toxic platinum-particles and then shrink and die. Daniel also demonstrated that these same particles are capable of absorbing hydrogen, and could be used to increase the efficiency and safety of mobile Proton Exchange Membrane fuel cells. As part of his research, presented at the 2006 meeting of the American Physical Society, Daniel became certified on the National Synchrotron Light Source at Brookhaven National Lab. At the **Hebrew Academy of the Five Towns and Rockaway** in Cedarhurst, Daniel is president and founder of the nanotechnology club. He enjoys swimming and designing and building mechanical devices and aspires to be an inventor. Daniel is the son of Dr. Michael and Sherry Katz and hopes to enroll at Cornell.



Rebecca Lynn Kaufman
Croton-Harmon High School

NEWYORK

Rebecca Lynn Kaufman, 17, of **Croton-on-Hudson**, examined the effects of hormone replacement therapy on behavior to better understand the underlying mechanisms of schizophrenia for the **medicine and health project** she entered in the Intel Science Talent Search. Rebecca used a novel application of the Object Recognition task to study aspects of cognition in male rats that are similar to prefrontal cortex (PFC) processes at risk in people with schizophrenia. She developed her own procedure for quantifying and comparing the observed and recorded actions of various treatment groups. Subjects included previously neutered rats that had received no hormone replacement or had received either testosterone or estrogen. Her findings indicate that without androgens (steroid hormones that increase male characteristics), PFC function in male rats is weakened. She believes this suggests that androgen replacement therapy might be beneficial in treating negative symptoms of human schizophrenia. At **Croton-Harmon High School**, Rebecca is treasurer of her class and writes for the literary magazine and newspaper. The daughter of Steven and Robin Kaufman, she hopes to attend UC Berkeley or Brown.



Hermain Suhail Khan
Staten Island Technical High School

NEW YORK

Hermain Suhail Khan, 17, of **Staten Island**, used electron spin resonance (ESR) techniques coupled with iron-uptake experiments to determine the age of fossilized crocodylian teeth from India for his **earth and planetary science** Intel Science Talent Search project. ESR is difficult to use on fossilized teeth because they contain iron, which interferes with ESR data. Hermain found a way to date the teeth, using ESR, by subtracting a pure iron signal from the signal in the teeth. He believes the remaining signal provides reliable age information. His work has already generated two conference publications. Hermain, who hopes to enter Harvard, attends **Staten Island Technical High School**, where he enjoys running, birdwatching, playing the violin and tennis. The son of Shahid and Rehana Khan, he wrote a play, performed off-Broadway last June, based on his mother's move to the U.S. and her struggle to raise five children and adapt to American life. Founder of a non-profit group, Muslims United, Hermain spearheaded fund-raising efforts in the school and community for earthquake relief in his native Pakistan, raising \$6,000.



Brian Robert Lawrence
Montgomery Blair High School

MARYLAND

Brian Robert Lawrence, 17, of **Kensington**, involved classical matrix groups with the classification theorem of finite simple groups for his Intel Science Talent Search in **mathematics**. He classifies several families of minimal finite groups, such as the smallest ones with exactly $p^2 - 1$ elements of order p for any prime p . A finite group G occurs as a nonempty subset of all permutations of some fixed finite set X which is closed under taking inverses and compositions. The order of an element g of G is the least positive integer such that g^n is the identity map on X . Brian lists examples of minimal groups, proves a bound on the possible size that any example could have, and then shows that his list is complete. Brian attends **Montgomery Blair High School** in Silver Spring, where he is captain of the math team. He has earned national and international mathematical honors and independently studies Latin and Chinese. Principal cellist in the Maryland Classic Youth Orchestra, Brian also enjoys playing in the American Youth Philharmonic. The son of Drs. James and Vivian Lawrence, he plans to pursue a career as a mathematician because of "the beauty and structure of the subject."



Gongmyung Lee
Phillips Exeter Academy

NEW HAMPSHIRE

Gongmyung Lee, 17, of **Exeter**, submitted an Intel Science Talent Search **computer science** project applying the Darwinian principles of mutation, crossover and survival-of-the-fittest to solve global optimization problems. Differential evolution, a branch of evolutionary computation, is a broad term for algorithms that apply Darwinian principles. Mike proposed, designed and developed two variants of the differential evolution algorithm by providing greater diversity in the population of solutions and exploring a greater portion of the potential solutions. This resulted in improved, more efficient versions of an existing algorithm. At **Phillips Exeter Academy**, Mike is co-head of the jazz and Korean language clubs and a four-year member of the computer science club, which designed a networked chatting program that doesn't require a central server. In another project, Mike combined music and science by getting the computer to harmonize melody lines. He hopes to study computer science at Stanford or MIT preparing for a career in artificial intelligence, which, he believes, holds incredible potential to increase human productivity. A native of Korea, Mike is the son of Woojin and Mira Lee.



Siyuan Liu
Troy High School

MICHIGAN

Siyuan Liu, 17, of **Troy**, entered the Intel Science Talent Search with a **biochemistry** research project focused on fibroblast growth factor receptors (FGFR), a class of molecules recently linked to brain disorders. To determine the effects of chronic stress and the administration of FGF2, a signaling molecule that binds to the FGFR molecules, Siyuan studied the frontal cortex tissue of rats that had or had not been exposed to randomized stressors (cold, noise, etc.), and/or injected with FGF2. His results showed that the expression of the receptors had been affected not only in quantitative levels, but also in the expression of different receptor subtypes. He believes his research adds to our knowledge of brain signaling molecules and their relation to neurological and psychiatric disorders, and may also aid in the development of therapeutic drugs. At **Troy High School**, Siyuan is a captain in varsity cross country and track, and an officer of the Science Olympiad and physics club. He is an award-winning violinist and the 2005 champion of the International Brain Bee, sponsored by the Society for Neuroscience. Born in China, he is the son of Dr. Jay Liu and Xueli Zhang and hopes to attend Stanford or Harvard.



Meredith Ann MacGregor
Fairview High School

COLORADO

Meredith Ann MacGregor, 18, of **Boulder**, investigated the Brazil Nut Effect, a phenomenon in which shaken granular particles separate out by size with the largest on top, for her **physics** Intel Science Talent Search project. To test the fluid-like phenomena of these particles in her home basement laboratory, Meredith constructed containers of Lucite[®], both rectangular and cylindrical, that could vibrate vertically. She filled each container with granular materials ranging in size from 0.5 mm glass beads to 3.0 mm tapioca pearls. She tracked the motion of a large “intruder” particle among smaller granules through computer modeling and experiments. She concluded that, although vibration-induced convection flow contributes to particle size separation, the effect of air flow through the granules when shaken is key to understanding this phenomenon. First in her class of 444 at **Fairview High School**, Meredith competes in varsity cross country and track, enjoys playing the violin and sailing. The daughter of Dr. Keith and Kathryn MacGregor, Meredith received an Intel Foundation Young Scientist Award at Intel ISEF in 2006 for her work in physics. She hopes to attend Harvard or Princeton.



Sarah Elizabeth Marzen
Thomas Jefferson High School for Science & Technology

VIRGINIA

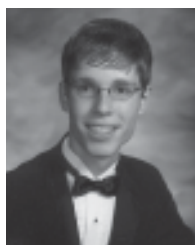
Sarah Elizabeth Marzen, 17, of **McLean**, submitted an Intel Science Talent Search project in **chemistry** that developed an improved theory and physical model for organic solvation (the process of swelling, gelling or dissolving a material by a solvent). Sarah used statistical mechanics, incorporating pressure-volume effects, to generate more accurate thermodynamic properties of free energy and heat energy during solvation. In her model, she represented the placement of water around the solute as a probability distribution as opposed to a uniform distribution. These improvements suggest that hydrogen bond reordering may assist in understanding hydrophobic hydration of larger complex molecules as proteins in water. Sarah is the first female captain of the physics team at **Thomas Jefferson High School for Science & Technology** in Alexandria, and is also co-president of the Tomorrow’s Women in Science and Technology club. She has earned awards for her achievements in math, science, Latin and varsity cross country. The daughter of Stephen Marzen and Louise Epstein, she plays viola and piano. Sarah plans to major in physics and math in college and become a physics professor.



Mary Masterman
Westmoore High School

OKLAHOMA

Mary Masterman, 17, of **Oklahoma City**, submitted a **physics** project to the Intel Science Talent Search describing the spectrograph system she built for \$300 at home (commercial units can cost \$20,000 to \$100,000). Mary found that machining the parts and aligning the optics (lenses from a microscope and a camera) were particularly challenging. Her Littrow spectrograph splits light, like a prism, and uses a camera to record the resulting Raman spectra – a specific vibrational fingerprint of the molecular compound being investigated. Using a laser as her light source, Mary tested several household objects and solvents and compared her results to published wave numbers. Despite the shortcomings of the inexpensive laser, she found she could make relatively accurate wavelength measurements with her homemade device. Author of a poster presentation about the Raman Effect at an American Astronomical Society conference and winner of numerous science honors, Mary is ranked first of 658 at **Westmoore High School**. She plays the piano, harp and flute, and she enjoys birdwatching and painting. The daughter of John and Patti Masterman, Mary is hoping to enroll at MIT or CalTech.



Richard Matthew McCutchen
Montgomery Blair High School

MARYLAND

Richard Matthew McCutchen, 17, of **Rockville**, submitted a theoretical **computer science** project to the Intel Science Talent Search addressing this problem: What set of rules (collectively known as an algorithm) could be used to assign people to jobs, considering the preferences of each individual and maximizing their happiness? Such an algorithm would allow programmers to write new software matching people and positions. Working mostly at home, Matt tried to solve the problem using a rule known as “least-unpopularity factor matching” to assign many people to many positions even when no “popular matching” options existed. His research eliminated one possibility in the search for an algorithm that would work, and suggested where a suitable one might be found. Matt attends **Montgomery Blair High School** in Silver Spring, where he heads the computer club. He has won many awards, notably a gold prize at the 2005 International Olympiad in Informatics in Poland. His hobbies include music theory and composition and open source software development. The son of Richard and Rosemary McCutchen, Matt hopes to continue his studies at MIT or CalTech.



Gabriel Joel Mendoza
Americas High School

TEXAS

Gabriel Joel Mendoza, 18, of **El Paso**, submitted an Intel Science Talent Search project in **zoology** that explored the dynamics and effects of transovarial transmission in West Nile Virus (WNV). Transovarial transmission, the direct infection of mosquito eggs by the mother, is currently not included as part of the WNV transmission cycle and lacks documented studies. Gabriel helped collect field data for more than two years and combined it with published information before comparing it with the dynamic computer simulation model he created. He used his model to test hypotheses of seasonal reentry of WNV, and possible alterations of infection rates in birds and humans. His study indicates that transovarial transmission may have a significant impact on the severity of seasonal epidemics, and may already be an undervalued element in WNV transmission. Gabriel is first in his class of 550 at **Americas High School**. An Eagle Scout, he enjoys Kung Fu and choir, and has received awards for his achievements in science, writing and art. The son of Pablo and Merced Mendoza, Gabriel plans to attend MIT or CalTech for quantum computing and hopes to contribute to the next computer revolution.



Sohan Venkat Mikkilineni
Detroit Country Day School

MICHIGAN

Sohan Venkat Mikkilineni, 18, of **Bloomfield Hills**, submitted an Intel Science Talent Search **mathematics** project that analyzed determinantal sequences. A d -determinantal sequence is a doubly infinite sequence of integers $(\dots, a_{n-1}, a_n, a_{n+1}, \dots)$ such that the two-by-two determinant $a_n a_{n+3} - a_{n+1} a_{n+2} = d$. Note that three consecutive entries, together with d , determine the sequence. For $|d| > 1$ and where there is no common divisor of all the terms with odd indices (and similarly for even indices), Sohan proved that there are, with few exceptions, only finitely many solutions. By setting $x = a_1, y = a_2$ one sees a link between determinantal sequences and those solutions of the equation $ax^2 + abxy - by^2 = -d$ with none of the pairs $(x,b), (y,a)$ and (x,y) having a non-trivial common divisor. Sohan attends **Detroit Country Day School** in Beverly Hills, and is captain of the F.I.R.S.T. Robotics Club. His scientific achievements have earned him a certificate of tribute from Governor Granholm. An accomplished cellist, Sohan is a member of the Detroit Civic Sinfonia Orchestra. The son of Drs. Prasad and Jhansi Mikkilineni, he plans to study pre-medicine at MIT or Stanford.



John Vincent Pardon
Durham Academy

NORTH CAROLINA

John Vincent Pardon, 17, of **Chapel Hill**, researched the unfolding of simple closed curves for his Intel Science Talent Search project in **mathematics**. John showed that any rectifiable closed curve can be deformed via an expansive motion to form a convex set. For a curve to be convex, the line joining any two points in the curve must not cross the curve. John's result can be understood by thinking of a loop of string with the ends connected, lying on a table, with no crossings: he showed it is possible to move this into a convex shape without allowing any two points to come closer to each other. This result was known for polygons; John used a new approach to extend the result to a wide range of shapes. At **Durham Academy**, John participates in track and cross country. He plays cello in the Honors All State Orchestra, was one of the top 25 algorithm writers in the TopCoder competition, and received a gold prize at the 2005 and 2006 International Olympiads in Informatics. A robotics apprentice in 2005, John spent last summer on an organic farm in Costa Rica. The son of Dr. William and Joyce Pardon, John hopes to study math and computer science at CalTech or Princeton.



Abhinav Rohatgi
Garden City High School

NEW YORK

Abhinav Rohatgi, 17, of **Garden City**, studied the effects of MTBE, a gasoline additive, on the physiology and mortality of marine mollusks for his Intel Science Talent Search project in **environmental science**. MTBE has been found in high concentrations in water sources around Long Island. Using blue mussels common to the area, he demonstrated that there is a direct linear relationship between their death rate and the MTBE concentration in the water. He also found that when MTBE concentrations exceeded 100 ppb, levels of nitric oxide in the nerve tissues became elevated and morphological changes occurred in blood cells, leading to death. Because humans have similar mechanisms for producing and using nitric oxide, Abhinav hopes his findings will lead to the development of safe chemical blocking agents to mitigate MTBE's harmful effects, and to stricter laws regulating waste management of chemicals. President of the chess club and founder of Japanese Animation Studies at **Garden City High School**, Abhinav also enjoys playing guitar. He hopes to pursue a degree in chemistry at Brown or Rice University. Born in India, Abhinav is the son of Drs. Rajesh and Shiphali Rohatgi.



Erin Marie Schikowski
Hathaway Brown School

OHIO

Erin Marie Schikowski, 18, of **Solon**, experimented with synthetic polymers for the **materials science** project she submitted to the Intel Science Talent Search. In working toward the development of metal-containing polymers that could potentially exhibit mechanical, electronic and luminescent properties, Erin focused on establishing the binding control between the ligand-containing (macro)monomers and the metal ions to form the metallo-supramolecular complex. She synthesized several model ligands that have already been used as the (macro)monomers in several binding studies. She believes her research suggests the formation of a definite, ordered metallo-supramolecular complex that may be suitable for use in the preparation of reversible, metallo-supramolecular block polymers, which are extremely valuable in applications including thermoplastic resins, membranes and polymer blends. Erin is co-captain of the varsity diving team and co-president of the math club at **Hathaway Brown School**, in Shaker Heights, and is an accomplished pianist and artist. She is the daughter of Drs. Carl Schikowski and Carolyn Nemecek and hopes to study chemical engineering at Brown or Stanford.



Catherine Schlingheyde
Oyster Bay High School

NEW YORK

Catherine Schlingheyde, 17, of **Oyster Bay**, submitted an Intel Science Talent Search project in **biochemistry** that researched microRNA repression pathways. Catherine undertook a large-scale structural and functional protein study (proteomic approach) using MudPIT, a combination of liquid chromatography and mass spectrometry, which led to the identification of multiple proteins. These small proteins interacted with Argonaute, a protein vital to the RNA interference pathway, which binds to messenger RNA and can inhibit genetic code translation. Catherine also identified the possible association of Argonaute and components of spindle checkpoint, a specific biological mechanism that may lead to chromosomal instability and cancer. Catherine attends **Oyster Bay High School**, where she has participated in varsity badminton and received numerous awards for her accomplishments in math, science and French. In her spare time she enjoys chess, snowboarding, yoga and bellydance and spent a summer volunteering at a local soup kitchen. The daughter of John and Meryl Schlingheyde, she hopes to attend Case Western Reserve or MIT and pursue a career as a virologist.



Carol Yoon Joo Suh

Palos Verdes Peninsula High School

CALIFORNIA

Carol Yoon Joo Suh, 17, of **Rancho Palos Verdes**, submitted a **medicine and health** project to the Intel Science Talent Search that combines nanotechnology with cancer detection. As a volunteer researcher in UCLA's Department of Molecular and Medical Pharmacology since May 2005, Carol developed the first microfluidic chip for detecting and analyzing cancer cells. She was able to demonstrate that Micro Pathology Lab Chips (μ -PLCs) can analyze multiple protein interactions from cancer signaling pathways, and, by using a fluorescent microscope, detected proteins from the most malignant form of brain and spinal cord cancer (glioblastoma) on a microfluidic chip. Her findings could improve cancer diagnostics and help physicians determine which treatments would be most effective for any particular patient. Carol plays varsity tennis and is president of the Science Olympiad team at **Palos Verdes Peninsula High School** in Rolling Hills Estates. She plays piano and viola and her many honors include a first place award in biochemistry at the California State Science Fair in 2006. The daughter of Myung In Suh and Sunhee Suh, Carol hopes to continue her studies at Harvard or MIT.



Dmitry Vaintrob

South Eugene High School

OREGON

Dmitry Vaintrob, 18, of **Eugene**, submitted a **mathematics** project to the Intel Science Talent Search exploring the relationship between two algebraic structures built from the same topological object. One of these, called "loop homology," is built from continuous maps from a circle into any well-behaved space X . (Well-behaved here means that X must be a closed oriented smooth manifold.) Loop homology is difficult to compute, but Mitka showed that in many cases it is isomorphic to the Hochschild cohomology of the fundamental group. At **South Eugene High School**, Mitka enjoys running, Nordic skiing, learning foreign languages, classical literature and poetry. Born in Russia and fluent in the language, he participates in Russian theater. Mitka has won numerous and multiple math honors; he received the state's top score in the American Math Competition two years running and was twice named one of sixteen Junior Fellows at the Clay Mathematics Research Academy. The son of Drs. Arkady Vaintrob and Julia Nemirovskaya, Mitka hopes to study pure mathematics at Harvard or MIT and one day become a research mathematician and university educator.



Sean Matthew Wahl
Troy High School

CALIFORNIA

Sean Matthew Wahl, 17, of **Fullerton**, theoretically modeled plate tectonic systems in one dimension and on a sphere for his Intel Science Talent Search **earth and planetary science** project. Convincing evidence for a plate tectonic system controlled mostly by attributes of the lithosphere (platonics), rather than the effects of mantle convection (plutonics), led Sean to investigate how plate tectonic systems might evolve for a world controlled purely by platonics using general rules about how plates and plate boundaries move, grow and die. Applying his probabilistic method to Earth today, he was able to predict how Pangea Ultima, the next single supercontinent, might form 250 million years from now. As passionate about playing soccer as he is about science, Sean has been recognized with the Scholar Athlete Award at **Troy High School** where he also runs cross country and is active in the music club. He is captain of the school's Science Olympiad team and has earned ten individual national medals, a school record, among myriad other awards. Sean, the son of Kurt Wahl and Mari Beth Migliore, hopes to attend CalTech or MIT to study planetary geology and conduct research.



Shu Wan
Classical High School

RHODE ISLAND

Shu Wan, 18, of **Providence**, entered the Intel Science Talent Search with a **medicine and health** project focused on the use of all-trans retinoic acid and anti-oxidants to protect human skin against damage from ultraviolet (UV) radiation and cell dehydration. Shu studied a newly discovered water channel called aquaporin-3 in the skin and how UV radiation, which is present in sunlight, damages these tiny channels – causing dehydration and promoting photoaging and wrinkles. His work suggests a new understanding of the cell-signaling pathways as well as the molecular mechanisms of UV-induced skin aging and may lead to better anti-aging products. At **Classical High School**, Shu is active on the indoor lacrosse team as well as the science and math clubs, and has won gold medals in Latin and science Olympiad competitions. He relaxes by playing the violin and is a member of the Chopin Musical Society for Young Musicians. Shu's activities last summer included volunteering at Hasbro Children's Hospital and directing a series of nursing home concerts. The son of Dr. Yinsheng Wan and Dongqin Yang, Shu was born in China and hopes to attend Columbia or Harvard.



Rui Wang
Fairport High School

NEW YORK

Rui Wang, 18, of **Fairport**, entered the Intel Science Talent Search with a **chemistry** project describing a new computational approach for establishing the absorption wavelengths of nickel dithiolene dyes. These dyes are noted for their intense absorption over a broad range of near-infrared wavelengths and have applications in optics, liquid crystal technologies and lasers. A novel aspect of Rui's study was her use of time-dependent density functional theory, a relatively new methodology, allowing her to predict accurately the maximum absorption wavelengths of various nickel dithiolene dyes. With her methodology validated, Rui designed and modeled four nickel dithiolene molecules that could extend the maximum infrared wavelengths without costly and time-consuming synthesis. First in her class of 563 at **Fairport High School**, Rui hopes to pursue a career in medicine after studies at Harvard or Cornell. Founder and president of the science bowl club and winner of many science awards, her hobbies include working with birds, hiking, playing violin and community service. The daughter of Drs. Xinrong Wang and Lijian Ruan, Rui earned perfect SATs and is fluent in the language of her native China.



Kelydra Elizabeth Welcker
Parkersburg South High School

WEST VIRGINIA

Kelydra Elizabeth Welcker, 18, of **Parkersburg**, entered the Intel Science Talent Search in **environmental science** studying ammonium perfluorooctanoate (APFO), used in the production of non-stick cookware. Research suggests the Mid-Ohio Valley, where she lives, has the highest degree of APFO contamination in the world, inspiring Kelydra to find ways to detect and remove the potential carcinogen from contaminated drinking water. Kelydra first devised a simple way to test drinking water for APFO by measuring the foam on a shaken sample of boiled-down water. Then, working in her at-home lab, Kelydra developed two devices to remove APFO from drinking water: a tank using diffuse double layer electrosorption, and a low-cost tabletop device that can be used anywhere. She has patents pending for both inventions. Her research also suggests a statistically significant increase in West Nile Virus in APFO-contaminated areas such as hers. She plays clarinet at **Parkersburg South High School** and volunteers with the Reptile Rescue and Aid Society. The daughter of Dr. Peter and Karen Welcker, Kelydra has won numerous science awards and dreams of attending Harvard.



Yin Yin Wu
Atherton High School

KENTUCKY

Yin Yin Wu, 18, of **Louisville**, submitted a **chemistry** project to the Intel Science Talent Search that examined mechanisms of proton transport in simple synthetic crystals that may lead to a better understanding of proton transport in fuel cells. Using a quantum mechanical simulation technique and Metropolis Monte Carlo calculations, Yin Yin modeled two hypotheses for proton transport within water chains that were surrounded by molecular walls of histidine residue. Her research suggests that protons are transported through a combination of two mechanisms, the Grotthuss relay mechanism, in which protons are transported along a chain of water molecules, and the shuttle mechanism, which involves channel walls in proton movement. Yin Yin, first in her class of 175 at **Atherton High School**, received the Yale Book award for her achievements in writing. A senior Girl Scout, she is also a counselor for the Louisville Girls Leadership Summit. She enjoys tennis, swimming, ping pong and ice skating. Yin Yin was born in China and is the daughter of Ming Shan Wu and Dr. Lu Ye. She plans to attend Harvard or MIT, and eventually pursue a doctorate and expand her current research.



Nora Xu
Illinois Mathematics & Science Academy

ILLINOIS

Nora Xu, 17, of **Naperville**, developed a unique x-ray scattering method for determining the number of layers in nanocrystalline superlattice (NCS) thin films for her Intel Science Talent Search **physics** project. Since self-assembly of NCS multilayer thin films cannot be controlled, it is difficult to determine how many layers are present. To solve the problem, Nora developed a mathematical model that treated the multilayer NCS film as a 2D crystal in 3D space. Using her model, diffraction patterns of x-ray scattering can be derived and used to predict the number of layers in multilayer NCS films. Understanding the function-structure relationship of NCSs would allow specific NCSs to be developed, such as gold nanocrystals for use in optoelectronics and drug delivery for cancer patients. Nora's analysis is believed to be the first to characterize NCSs using x-ray scattering in a quantitative manner. At **Illinois Mathematics & Science Academy**, in Aurora, Nora plays varsity tennis and is copy editor of the school science magazine, *Hadron*. The daughter of Dr. Ming Xu and Yihong Xiao, Nora hopes to study physics at CalTech or MIT and pursue a career as a professor.

Intel Science Talent Search 2007

Finalists Listed by State

Alabama	Marshall Bradley Everett, <i>Christian Shoals School</i>	9
California	Alexandra Maria Courtis, <i>Davis Senior High School</i>	8
	Carol Yoon Joo Suh, <i>Palos Verdes Peninsula High School</i>	20
	Sean Matthew Wahl, <i>Troy High School</i>	20
Colorado	Meredith Ann MacGregor, <i>Fairview High School</i>	15
Connecticut	Sophie Cai, <i>Ridgefield High School</i>	6
Illinois	Nora Xu, <i>Illinois Mathematics & Science Academy</i>	23
Kentucky	Yin Yin Wu, <i>Atherton High School</i>	23
Maryland	Emma Kathryn Call, <i>Baltimore Polytechnic Institute</i>	6
	Brian Robert Lawrence, <i>Montgomery Blair High School</i>	13
	Richard Matthew McCutchen, <i>Montgomery Blair High School</i>	16
Michigan	Temple Mu He, <i>Troy High School</i>	11
	Siyuan Liu, <i>Troy High School</i>	14
	Sohan Venkat Mikkilineni, <i>Detroit Country Day School</i>	17
New Hampshire	Gongmyung Lee, <i>Phillips Exeter Academy</i>	14
New Jersey	Megan Marie Blewett, <i>Madison High School</i>	4
	Neha Anil Deshpande, <i>South Brunswick High School</i>	8
	Daniel Adam Handlin, <i>High Technology High School</i>	10
New York	Sarah Dana Bayefsky-Anand, <i>Abraham Joshua Heschel School</i>	4
	Oren Brecher, <i>Suffern High School</i>	5
	Natalie Avella Cameron, <i>W. Tresper Clarke High School</i>	7
	Kaitlin Duncan, <i>Plainedge High School</i>	9
	Kathryn Blair Friedman, <i>The Chapin School</i>	10
	Jimmy Hom, <i>Syosset High School</i>	11
	Daniel Scott Katz, <i>Hebrew Academy of Five Towns & Rockaway</i>	12
	Rebecca Lynn Kaufman, <i>Croton-Harmon High School</i>	12
	Herman Suhail Khan, <i>Staten Island Technical High School</i>	13
	Abhinav Rohatgi, <i>Garden City High School</i>	18
	Catherine Schlingheyde, <i>Oyster Bay High School</i>	19
	Rui Wang, <i>Fairport High School</i>	22
North Carolina	John Vincent Pardon, <i>Durham Academy</i>	18
North Dakota	Gregory Drew Brockman, <i>Red River High School</i>	5
Ohio	Erin Marie Schikowksi, <i>Hathaway Brown School</i>	19
Oklahoma	Mary Masterman, <i>Westmoore High School</i>	16
Oregon	Dmitry Vaintrob, <i>South Eugene High School</i>	20
Rhode Island	Shu Wan, <i>Classical High School</i>	21
Texas	Yieu Chyan, <i>Texas Academy of Mathematics & Science</i>	7
	Gabriel Joel Mendoza, <i>Americas High School</i>	17
Virginia	Sarah Elizabeth Marzen, <i>Thos. Jefferson HS for Science & Technology</i>	15
West Virginia	Kelydra Elizabeth Welcker, <i>Parkersburg South High School</i>	22

Intel Science Talent Search 2007
Finalists Listed by Last Name

Bayefsky-Anand, Sarah Dana	New York, NY	4
Blewett, Megan Marie	Madison, NJ	4
Brecher, Oren	Suffern, NY	5
Brockman, Gregory Drew	Thompson, ND	5
Cai, Sophie	Ridgefield, CT	6
Call, Emma Kathryn	Baltimore, MD	6
Cameron, Natalie Avella	Westbury, NY	7
Chyan, Yieu	Denton, TX	7
Courtis, Alexandra Maria	Davis, CA	8
Deshpande, Neha Anil	Monmouth Junction, NJ	8
Duncan, Kaitlin	Massapequa, NY	9
Everett, Marshall Bradley	Florence, AL	9
Friedman, Kathryn Blair	New York, NY	10
Handlin, Daniel Adam	Lincroft, NJ	10
He, Temple Mu	Troy, MI	11
Hom, Jimmy	Syosset, NY	11
Katz, Daniel Scott	Lawrence, NY	12
Kaufman, Rebecca Lynn	Croton-on-Hudson, NY	12
Khan, Hermain Suhail	Staten Island, NY	13
Lawrence, Brian Robert	Kensington, MD	13
Lee, Gongmyung	Exeter, NH	14
Liu, Siyuan	Troy, MI	14
MacGregor, Meredith Ann	Boulder, CO	15
Marzen, Sarah Elizabeth	McLean, VA	15
Masterman, Mary	Oklahoma City, OK	16
McCutchen, Richard Matthew	Rockville, MD	16
Mendoza, Gabriel Joel	El Paso, TX	17
Mikkilineni, Sohan Venkat	Bloomfield Hills, MI	17
Pardon, John Vincent	Chapel Hill, NC	18
Rohatgi, Abhinav	Garden City, NY	18
Schikowski, Erin Marie	Solon, OH	19
Schlingheyde, Catherine	Oyster Bay, NY	19
Suh, Carol Yoon Suh	Rancho Palos Verdes, CA	20
Vaintrob, Dmitry	Eugene, OR	20
Wahl, Sean Matthew	Fullerton, CA	21
Wan, Shu	Providence, RI	21
Wang, Rui	Fairport, NY	22
Welcker, Kelydra Elizabeth	Parkersburg, WV	22
Wu, Yin Yin	Louisville, KY	23
Xu, Nora	Naperville, IL	23

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