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MINNESOTA: Dr. Adela S. Elwell, President, Opportunities In Science, Inc., P.O. Box 1176, Bemidji, MN 56601

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MONTANA: Dr. David A. Thomas, Assistant Professor of Mathematics Education, Department of Mathematical Sciences, Montana State University, Bozeman, MT 59717-0001

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NEW JERSEY: Professor Ida A. Leone, Beck Hall, Room 216, Kilmer Campus, Rutgers University, New Brunswick, NJ 08903

NEW MEXICO: Dr. David K. Shortess, Professor of Biology, New Mexico Tech, Campus Station, Socorro, NM 87801

NORTH CAROLINA: Ms. Myra Halpin, North Carolina School of Science and Mathematics, P.O. Box 2418, Durham, NC 27715

OHIO: Mr. Lynn Edward Elfner, Executive Officer, The Ohio Academy of Science, 445 King Avenue, Columbus, OH 43201

OKLAHOMA: Mr. Jim Pigg, Director, Oklahoma State Science Talent Search, 401 Rock Place, Moore, OK 73160

OREGON: Dr. Jan Paul Dabrowski, Director, Science Programs Department, Oregon Museum of Science and Industry, 4015 S.W. Canyon Road, Portland, OR 97221

PENNSYLVANIA: Dr. Bruce D. Martin, Associate Vice President for Academic Affairs, Duquesne University, 502 Administration Building, Pittsburgh, PA 15282-0205

UTAH: Mr. R. LaMar Allred, Specialist in Science Education, Utah State Office of Education, 250 East 500 South, Salt Lake City, UT 84111

VIRGINIA: Ms. Tish McKinstry, Virginia Junior Academy of Science, 11671 Gilman Lane, Herndon, VA 22070-2420

WASHINGTON: Ms. Virginia P. Treadway, Manager, Education Resources, Hanford Science Center, Westinghouse Hanford Company, P.O. Box 1970, Mailstop A1-60, Richland, WA 99352

WEST VIRGINIA: Dr. Joseph F. Glencoe, Jr., Professor of Biology, West Virginia Wesleyan College, Box 31, Buckhannon, WV 26201

WISCONSIN: Dr. Dean P. Nelson, Professor of Chemistry, University of Wisconsin, P-458, Eau Claire, WI 54702

WYOMING: (See Colorado-Wyoming)

FOR USE: FRIDAY, JANUARY 25, 1991

THE 50TH ANNUAL

STS



SCIENCE  
TALENT  
SEARCH

WESTINGHOUSE  
SCIENCE  
SCHOLARSHIPS

1991  
SEMIFINALISTS

Administered by SCIENCE SERVICE  
1719 N Street N.W., Washington, D.C. 20036



## Science Talent Search

The Science Talent Search was the pioneering endeavor to discover and encourage high school seniors with the ability to be tomorrow's outstanding scientists and engineers. It has succeeded far beyond the hopes of its founders.

Aided over the years by millions of dollars in Westinghouse scholarships and similar aid from educational institutions eager to have such talented students, many of those discovered by the Search have gone on to distinguished careers. Many have received major recognition, including five who have won Nobel prizes.

The Search itself has become an institution, a prestigious tradition widely approved and supported by the academic community.

Westinghouse Electric Corporation has made a notable contribution to the advancement of science in America by financing the Science Talent Search through the 50 years of its existence.

Science Service, engaged in the interpretation and public understanding of science on a broad front, is proud of administering the annual Science Talent Search. From the educators, journalists, scientists and engineers of America there has been enthusiastic cooperation in this annual activity that means so much to high school seniors interested in science and engineering.

## 1991 Semifinalists

The achieving of semifinalist status in the Science Talent Search is evidence of ability and interest in science and engineering which is taken into consideration by colleges and universities in admissions and granting of scholarships. For this reason this semifinalist list is distributed to all universities and colleges in the United States. Each of those selected as a semifinalist is being furnished with multiple certifications intended to accompany applications for college admissions and for scholarships, but a listing in this pamphlet should be accepted as an equivalent certificate. Listed are 107 females and 193 males.

From this group of 300 semifinalists, 40 students are chosen as finalists for the Washington trip (February 28 - March 4, 1991) where \$205,000 in scholarships will be announced. The finalists are announced simultaneously with the distribution of this list and their names will be published in SCIENCE NEWS of January 26, 1991. A copy will be sent upon request.

(H.S. city in left column; age follows name; home address follows name of H.S. with home city omitted if same as H.S. city)

### ALABAMA

Decatur	Houston, Samuel Lawson 17 Decatur H.S. <u>2307 Quince Dr. 35601</u> Design and Implementation of <u>in vitro</u> Test Systems for the Study of Mutagenic, Carcinogenic, and Teratogenic Potential of Environmental Radiation
Florence	Linton, Joel Hugh 17 Bradshaw H.S. <u>523 Malone Cir. 35630</u> Graphical Analysis of a Chaotic Rotating Wheel System
Mobile	Mankad, Mehul Vipul 17 St. Paul's Episcopal School <u>5724 Vendome Dr. S. 36609</u> DNA and Protein Synthesis in K562 Erythroleukemia Cells Modulated by DMSO, PMA, and Hemin
Montgomery	Crittenden, Thomas Merrick 16 Sidney Lanier H.S. <u>6474 Halcyon Dr. 36117</u> Proofs and Corollaries of Pascal's 'Mystic Hexagram' Theorem
New Market	Countess, Karen Suzanne 17 Buckhorn H.S. <u>982 Countess Rd., Huntsville 35810</u> Adolescent Attitudes About Math: Anxiety or Apathy?
Vestavia Hills	Soong, Weily 18 Vestavia Hills H.S. <u>2355 Tyrol Pl. 35216</u> Genetic Requirements for Efficient Assembly and Transport of the Protein Capsid of the Mason-Pfizer Monkey Virus

### ARIZONA

Scottsdale	Tomeh, Mahmoud Munes 17 Chaparral H.S. <u>5600 E. Doubletree Rd. 85253</u> Molecular Analysis of Drug-Resistant Human Malignant Glioma Cells
Tucson	Winarski, Tyson York 17 Sahuaro H.S. <u>647 S. Woodstock 85710</u> Density of Martian Craters as a Function of Elevation and Its Application to the Identification of Ancient Sea Beds

### CALIFORNIA

Fresno	Kim, Eugene Joseph 17 Clovis West H.S. <u>3782 W. Locust 93711</u> Reactivity and Sensitivity of an Array of Monoclonal Antibodies Against the 64K Envelope Protein of Budded <u>Autographa californica</u> Nuclear Polyhedrosis Virus
Fullerton	Lin, John Chih-Chieh 17 Fullerton Union H.S. <u>2030 Palisades Dr. 92631</u> Synthesis of the White Light With Four Prisms
Irvine	Chan, Timothy 18 University H.S. <u>24 Jefferson St. 92720</u> Structure and Function of Tyrosine Kinase Proto-Oncogenes in <u>Hydra</u>
	Hamilton, Felix Skylar 17 University H.S. <u>4182 Fireside Cir. 92714</u> Music and the Trion Cortical Model: Windows Into Higher Order Cortical Functioning
Laguna Hills	Seemann, Michelle Marie 17 Laguna Hills H.S. <u>25481 Bootstrap 92653</u> Generation of Electrical Energy From Ocean Waves
Livermore	Derby, Michael Lawrence 17 Livermore H.S. <u>831 McGlinchey Dr. 94550</u> Formula Representation for the Summation of $k^p$
Los Altos Hills	Wang, Bonnie Rie-Hwa 18 Pinewood School <u>527 Cherry Ave., Los Altos 94022</u> Almost All Boolean Functions are Strongly Non-Monotone
Moraga	Kim, Christopher Sang-Jae 17 Campolindo H.S. <u>1080 Country Club Dr. 94556</u> Mechanism of Signal Transduction in Bacterial Chemotaxis
Riverside	Shan, Wei-Jen Jerry 17 John W. North H.S. <u>5411 Osburn Pl. 92506</u> A Low Reynolds Number Investigation of the Influence of Winglet Span on Drag Reduction
Sacramento	Ramachandran, Rageshree 15 Rio Americano H.S. <u>8541 Dominique Ct., Fair Oaks 95628</u> Computer Intensive Research on the Adequacy of a Simple Chaotic Numerical Model of the El Nino-Southern Oscillation
San Diego	Bowen, Heather Regina 17 James Madison Sr. H.S. <u>4558 Chateau Dr. 92117</u> Fiber Optic Heart/Respiration Waveform Monitor
	Purdy, Richard Michael 17 Serra H.S. <u>5786 Tortuga Rd. 92124-1214</u> Effects of Impaired Cell Division on the Development of Motor Behaviors in Embryos of <u>Xenopus laevis</u>
San Francisco	Wong, Donny 17 Lowell H.S. <u>2283 41st Ave. 94116</u> Optimization of Chemiluminescent Emissions From Singlet Oxygen Transitions
San Gabriel	Walters, Tessa Lorrell 16 San Gabriel H.S. <u>2244 Calle Margarita, San Dimas 91773</u> Inhibition of Angiotensin I-Converting Enzyme: Novel Design, Synthesis and Assay of Potent Antihypertensive Analogs From <u>Bothrops jararaca</u> Venom Peptides
San Jose	Caradonna, Michael Anthony 18 Bellarmine College Preparatory School <u>1701 Austin Ave., Los Altos 94024</u> The Efficiency of Model Airplane Propellers
Saratoga	Chuang, Felix 17 Saratoga H.S. <u>12351 Crayside Ln. 95070</u> Polarized and Non-Polarized Deflectance Versus Relative Water Content of Sunflower
West Hills	Shen, Andrew Hansen 17 Chaminade College Preparatory School <u>15043 Gauli St., Van Nuys 91405</u> Genetic and Phenotypic Analysis of the Glass, Comma, and Apa Mutations of <u>Drosophila melanogaster</u>

### COLORADO

Boulder	Hsiao, Victoria Chiayu 17 Boulder H.S. <u>5079 Holmes Pl. 80303</u> Effects of Actin Depolymerizing Factor on Chick Embryo Fibroblasts
Brighton	Larson, Mark Allen 17 Horizon Sr. H.S. <u>4224 E. 126th Ave., Thornton 80241</u> The Optical Brain: Design of an Optical Neural Computer
Colorado Springs	Archer, Emory Scott 17 William J. Palmer H.S. <u>2809 Flintridge Dr. 80918</u> Laser-Based Torsion Pendulum Measurement of a Fifth Fundamental Force

### CONNECTICUT

Greenwich	Kim, Don H. 18 Greenwich H.S. <u>15 Sundance Dr., Cos Cob 06807</u> A New Method for the Determination of Fluid Viscosity
Norwalk	Batouli, Toufic John 17 Norwalk H.S. <u>4 Grumman Ct. 06851</u> Derivation and Study of an Equation Relating Successive Ionization Potentials in Elemental Compounds
Wallingford	Su, Victor 17 Choate-Rosemary Hall <u>333 Christian St. 06492</u> Determining Whether a Rational Integer is a Quadratic Residue of Another Rational Integer, Extended and Generalized to the Ring of Gaussian Integers, $\mathbb{Z}[i]$

### DISTRICT OF COLUMBIA

Washington	Johnson, Bennie Fleming 17 McKinley Sr. H.S. <u>7300 8th St., NW 20012</u> Computers + Architecture = ?: Practical Applications of Computer Technology in the Field of Architectural Engineering
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- Washington (continued) Moore, Joel Ellis 17 St. Albans School 3804 Leland St., Chevy Chase, MD 20815 Computer Simulation of Growth Uniformity in Molecular-Beam Epitaxy  
Feldman, David Lewis 17 Washington International School 4455 29th St., NW 20008-2307 Effects of Electron Transport Chain Inhibitors Upon Light Emission in the Luminescent Bacterium *Vibrio fischeri*

#### FLORIDA

- Davie Comfort, Christopher Michael 17 Nova H.S. 11600 NW 15th St., Pembroke Pines 33026 Can Perfect Numbers Be Odd?  
Fort Lauderdale DiNonno, Elizabeth Susan 17 Cardinal Gibbons H.S. 10840 NW 40th St., Coral Springs 33065-2765 Do Students Placed in Specific Learning Disabled Classes Have a Greater Capacity for Right Hemispheric Ability Than Students Enrolled in Mainstream Classes?  
Fort Walton Beach Deibler, Kathryn Diane 17 Choctawatchee H.S. 20 James Ave., Shalimar 32579 Optimizing Plant Growth for a Space Environment  
Hollywood Farrell, Kevin Christopher 18 Chaminade-Madonna College Preparatory School 7268 Bedlington Rd., Miami Lakes 33014 Nuclear Reactions of <sup>10</sup>Be on <sup>10</sup>Be, <sup>11</sup>B, and <sup>12</sup>C  
Hypoluxo Cummings, Michael Edward 17 Santaluces Community H.S. 1555 S. Federal Hwy., #108, Delray Beach 33483 Methane Production for the Reduction of Organic Solid Wastes  
Lake City Hanks, Mary Elizabeth 17 Columbia Sr. H.S. Rt. 9, Box 763 32055 Effect of Direction and Order on Salt Solution Preference  
Miami Subbarao, Manoj Wunnava 16 Miami Sunset Sr. H.S. 10425 SW 143 Ct. 33186 Work of Breathing in Loaded Neonatal Piglets  
Pompano Beach Mansuria, Shetal Mohan 16 Ely H.S. 10204 SW 1st Ct., Coral Springs 33071 Effects of an Angiogenesis Inhibitor on the Growth of Human Pancreatic and Melanoma Cancers  
Port St. Lucie Ruddy, Jason Carl 17 Port St. Lucie H.S. 1481 SE Rivergreen Cir. 34952 Susceptibility of Fiber Optic Strands to Magneto-Optic Rotation of Polarized Light  
Sunrise Yuan, Alex 17 Piper H.S. 12240 NW 32nd Manor 33323 Effects of Various Light Sources on the Enhancement of Protochlorophyll/Chlorophyll Conversion Synthesis in *Phaseolus vulgaris*  
Vero Beach Gunasekera, Lushantha Sajotha 17 Vero Beach H.S. 450 21st Ct. 32962 Discovery of a Compound From the Sponge *Aplysina fistularis* Which Inhibits the *in vitro* Growth of Feline Leukemia Virus  
Wang, Clifford Lee 16 Vero Beach H.S. 515 Date Palm Rd. 32963 The Enhancement of Methane Production From Metals Enriched Seaweed

#### GEORGIA

- Duluth Newman, Stephen Andrew 18 Duluth H.S. 802 Lakeshore Dr. 30136 Use of a Pendulum System as a New Device for the Measurement of Pinning in Superconductors  
Roswell Jeffrey, Stacey Lynn 17 Roswell H.S. 225 Willow Lake Cove 30075 Comparison of the Cellular Spin Resonance of *Saccharomyces cerevisiae* and *Schizosaccharomyces octosporus*: Phase III

#### HAWAII

- Honolulu Louie, Lorraine Ting Fung 17 St. Andrew's Priory School 1052 14th Ave. 96816 Can Honeybees Learn About Landmarks?

#### ILLINOIS

- Chicago Wu, Yue 17 Kenwood Academy 5702 S. Drexel, #2 60637 Mixed Continued Fractions: A New Representation of (d)<sup>1/2</sup>  
Silverman, Maria Amelia 17 Lincoln Park H.S. 2223 N. Bissell 60614 Birth Order and Family Environment  
Evanston Huyck, James Matthew 17 Evanston Township H.S. 1020 Ashland Ave. 60202 Investigation Into the Behavior of Planetoids at the Triangular Libration Points in a Binary Star System  
Levine, Matthew Steven 17 Evanston Township H.S. 347 Florence Ave. 60202 Effect of Spring Constant Ratios on One-Dimensional Elastic Collisions of Three Masses  
Phillippe, Geoffrey Mandel 17 Evanston Township H.S. 9544 Ridgeway Ave. 60203 Ultra-Violet Light-Catalyzed Fries Rearrangement Using Thymyl Acetate

- Evanston (continued) Seeger, Joseph Izak 17 Evanston Township H.S. 1521 Greenleaf 60202 Analysis of Factors Affecting the Measurement of Thermal Diffusivity as Determined by the Flash Method  
Naperville Lee, Irwin 16 Naperville North H.S. 1006 Dakota Cir. 60563 The Acoustic Behavior of Electroviscous Fluids  
Winnetka Lin, Nancy Uan-Tsin 17 New Trier Township H.S. 235 Kilpatrick Ave., Wilmette 60091 Sequence Analysis and Characterization of the Regulatory Region of the Human HSP70 Gene: A Gene Which Codes for a Heat Shock Protein Thought to be Central in Cell Survival

#### INDIANA

- Ft. Wayne James, Rajesh Sebastian 18 Homestead H.S. 1927 Hadley Rd. 46804 Expert System for Natural Family Planning

#### IOWA

- Ames Ghoshal, Nupur 17 Ames H.S. 1310 Glendale Ave. 50010 Electrical Propagation of Proteinase Inhibitor II Presence in Poplar Hybrids

#### KANSAS

- Shawnee Mission Lai, Harry Hong-Lun 17 Shawnee Mission East H.S. 8924 Cedar Ln., Prairie Village 66207 Modeling Chaos in the Earth's Magnetofield  
Le, Christopher D. 17 Shawnee Mission South H.S. 11413 W. 106 St., Overland Park 66214-2671 New Methodology for the Improvement of GI Contrast Agents: Study of 'Posineg' Agents, *in vitro*  
Lee, Yueh Zenas 17 Shawnee Mission South H.S. 10824 W. 107th St., Overland Park 66214 Plasticizers for Cold Water-Soluble Polyvinyl Alcohol

#### KENTUCKY

- Louisville Berger, Zackary Dov 17 duPont Manual Magnet H.S. 6001 Fox Creek Ct. 40222-6332 Effect of Metallic Sulfates on JK80 *E. coli* Transformed With the Melanoplasmid pJ0E810  
Boggs, Rebecca Melora Corinne 17 Kentucky Country Day School 2115 Douglass Blvd. 40205-1901 Approximating  $y=2^{x-1}$  By Polynomials Derived From Pascal's Triangle

#### LOUISIANA

- Metairie Somers-Willett, Susan B. Anthony 17 Grace King H.S. 4505 Marseilles Pl. 70002 Structural Growth Cone Motility and Related Forces During Axonal Elongation and Neurite Development  
New Orleans Crago, Aimee' Marie 17 Mount Carmel Academy 230 Glendale Dr., Metairie 70001 Alfalfa Resistance to the Fungal Disease Anthracnose

#### MAINE

- Old Town Hess, Samuel Timothy 17 Old Town H.S. 103 String St., Stillwater 04489 Effect of Nearest Neighbors On the Pattern of Spontaneous Point Mutations

#### MARYLAND

- Bethesda Benesch, Jeffrey Nathan 17 Walter Johnson H.S. 934 Farm Haven Dr., Rockville 20852 Detecting Protein Structures in Introns by Hydrophobic Periodicity  
Columbia Wang, Edward Chuang 17 Atholton H.S. 10613 Judy Ln. 21044 Theoretical Basis for Determination of Protein Conformational Changes by Spectrophotometry  
Brain, David Andrew 17 Oakland Mills H.S. 9347 Enquiry Ct. 21045 Effects of Time on Optical Bandpass Filters: A Method of Prediction  
Ellicott City Polinsky, Jr., Ronald John 17 Centennial H.S. 9815 Northbrook Ct. 21043 Discovery of a New delta-12 Desaturase Inhibitor  
Randallstown Lebson, Cory Michael 17 Randallstown Sr. H.S. 8840 Sigrid Rd. 21133 Effect of Color on Adolescents' Perception of Others  
Rockville Kurawadwala, Jumana Fakhruddin 17 Thomas S. Wootton H.S. 10913 Citrean Ct., North Potomac 20878 Genetic Regulation of Herpes Simplex Virus Type One Latency



- Rockville (continued) Lin, Nina Hsin-Mei 18 Thomas S. Wootton H.S. 12640 Travilah Rd., Potomac 20854 Ribozymes as Anti-HIV Agents: Insertion of cis and trans Ribozymes Into the HIV-1 Genome
- Silver Spring Bloomfield, Jonathan Fox 17 Montgomery Blair H.S. 13712 Wagon Way 20906 Developing a Scale for a 26-Inch Refracting Telescope
- Chang, Charissa Yuhua 17 Montgomery Blair H.S. 18525 Azalea Dr., Derwood 20855 Analysis of the Binding of Murine Monoclonal Antibodies, Reactive to the Core and Lipid A Regions of Lipopolysaccharide, to E. coli 0111:B4 Treated With the Antibiotics Cefazidime and Imipenem
- Lerman, Jeffrey Charles 18 Montgomery Blair H.S. 14905 Waterway Dr., Rockville 20853 Mathematical Simulation of Lightning Stepped Leaders
- Neimark, Matthew Aaron Harold 17 Montgomery Blair H.S. 12908 Ruxton Rd. 20904 Properties of the Graphs Composed of the Two Middle Levels of the  $(2n+1)$ -Cube
- Walkersville Ignacio, Gladys Arbis 17 Walkersville H.S. 8501 Discovery Blvd. 21793 Effects of Antibiotics and Cadmium on Escherichia coli Grown in Compounds Similar to Salicylate

#### MASSACHUSETTS

- Foxborough Miller, Brian Charles 17 Foxborough H.S. 3 Hayden Dr. 02035 Male-Specific Muscle, Courtship and Fertility in Mutant Forms of Drosophila melanogaster
- Somerville Maravelis, Alysia Nicole 17 Somerville H.S. 236 Broadway 02145 Developmental Approach to Subject's Utilization of Perceptual Cues
- Topsfield Stevenson, Jeremy N. 18 Masconomet Regional H.S. 41 Timber Ln. 01983 Outsmarting Chaos

#### MICHIGAN

- Birmingham Stec, Lori Ann 18 Detroit Country Day School 95 Braemar Dr., Troy 48098-4606 Isolation and Identification of Factors Affecting Cecidogenesis of Three Stem Gall Systems in the Tall Goldenrod
- Houghton Kim, Daniel Young-joon 17 Houghton H.S. 9 Peepsock Rd. 49931-1034 A Simulation of Sea-Ice Ridge Acoustics and Sound Propagation in the Arctic Ocean
- Kalamazoo McCall, Benjamin John 16 Loy Norrix H.S. 2606 Bronson Blvd. 49008 Synthesis and Characterization of a Cobalt-Zinc Macrocyclic Compound

#### MINNESOTA

- Montevideo Whittman, Jennifer Ann 18 Montevideo Sr. H.S. 412 N. 7th St. 56265 Visitor Behavior and Attitudes Toward the Two Siberian Tiger Exhibits at the Minnesota Zoo
- Moorhead Lin, Michael Hongmai 17 Moorhead Sr. H.S. 1311 S. 19th St. 56560 Rings of Small Order: A Computer-Aided Study

#### MISSISSIPPI

- Jackson Goel, Anita 17 St. Andrew's Episcopal School 2522 Eastover Dr. 39211 Growth of Malignant Tomato Plant Tumors as Affected by Various Growth-Related Non-Toxins

#### MONTANA

- Ekalaka Mauch, Sean Patrick 17 Carter County H.S. Box 273 59324 Computing Revisit Time of the LAMBDASAT Satellite Communications System
- Fairview Flynn, Charles Robert 17 Fairview H.S. Box 2269, Rt. #2 59221 Effects of Extracts of Leafy Spurge, Euphorbia esula, on the Western Corn Rootworm, Diabrotica virgifera virgifera Leconte

#### NEBRASKA

- Central City McMahon, Shannon Renee' 18 Central City H.S. Rt. 1, Box 51 68826 Making the Grade: Effectiveness of Cooperative Learning at the First Grade Level
- Omaha Chapman, Kimberly Ann 18 Marian H.S. 3631 S. 116th Ave. 68144 Effects of the Benzo[a]pyrene-DNA Adducts Formed by BP Radical Cation and Benzo[a]pyrene 7,8-diol-9,10 Epoxide on the Restriction Enzymes, BstE II and Hind III

#### NEW JERSEY

- Bayonne Doyle, Robin Marc 17 Bayonne H.S. 65 Linnet St. 07002 Limulus polyphemus and Gromphadorhina portentosa Immunocytes: Identification, Protein Fractions of Their Plasma Membranes, and Functional Analogies With Vertebrate B- and T-lymphocytes, Macrophages, and Platelets
- Elmwood Park Lazarev, Denis Alexandrovich 17 Elmwood Park Memorial Jr.-Sr. H.S. 3623 Gardenvue Ter., Fair Lawn 07410 Influence of the Alternative Splicing Factor on the Protein-mRNA Interaction in the in vitro Splicing
- Franklin Lakes Dayner, Jeremy Joseph 17 Ramapo Regional H.S. 105 Edison St., Wyckoff 07481 Synergistic Effects of Aluminum Ions and pH on the Regeneration, Growth and Division of Planaria
- Middletown Sachs, Jason Michael 17 Middletown H.S. North 64 Sunset Pl. 07748 Subtraction Algorithm to Counteract the Effects of Spherical Aberration in Reflecting Telescopes
- Millburn James, Deborah Eileen 17 Millburn H.S. 151 Mohawk Rd., Short Hills 07078 It's Music To My Brain
- Mountain Lakes Chung, Dean Ramsey 16 Mountain Lakes H.S. 60 Pocono Rd. 07046 Investigations of Graceful and Non-Graceful Configurations
- Oakhurst Awad, Michael Magdi 18 Ocean Township H.S. 5 Cutter Dr., Ocean 07712 Photoisomerization of Cyanines: A Comparative Study of Oxygen and Sulfur-Containing Species
- Ocean Kantor, Marisa Gayle 17 Hillel Yeshiva H.S. 42 Ivyhill Dr., Aberdeen 07747 Orienteering Problem With Time Windows
- Ramsey Mazziotti, David Arthur 18 Don Bosco Preparatory H.S. 1035 Lafayette Ave. Ext., Hawthorne 07506 Contribution to the Mathematical Modeling of the AIDS Epidemic: Development of a Computer Spreadsheet Model and Its Application to the Projection of Future AIDS Incidence
- Raritan Lu, Stanley 17 Bridgewater-Raritan H.S. West 577 Cabot Hill Rd., Bridgewater 08807 Differences Between the Efficacies of Liposome-Encapsulated and Non-Encapsulated Tetracycline in the Growth Inhibition of Escherichia coli
- Voorhees Lin, George 17 Eastern Regional H.S. 80 William Feather Dr. 08043 Analysis of the Rare Earth Element in a High Temperature 1-2-3 Superconductor

#### NEW MEXICO

- Las Cruces Kurup, Anupama Govinda 17 Las Cruces H.S. 1909 Cole Village 88001 Temporal Development and Propagation of a Glow Discharge in a New Discharge Tube Configuration
- Santa Fe Haight, Cameron Rea 17 Santa Fe H.S. 720 Gonzales Rd. 87501 Experimental Turbulence and the k-Epsilon Transport Equations

#### NEW YORK

- Armonk Pederson, Cheryl Lynn 18 Byram Hills H.S. 14 Perry Ct. 10504 Behavioral Differences Between Male and Female Preschool Children at Play
- Bayside (NYC) Moallemi, Ciamac 15 Benjamin N. Cardozo H.S. 69-07 226th St. 11364 Neural Networks in the Computer Analysis of Voided Urine Cell Images for Bladder Cancer
- Sun, Benjamin Kevin 17 Benjamin N. Cardozo H.S. 45-44 194th St., Flushing 11358 Effect of the DNA Crosslinking Drug, U77,779 on the Structure of an Oligonucleotide Duplex,  $[d(CGTAATTACG)_2]$ : A Computer and  $^1\text{H-NMR}$  Analysis of the Duplex-Adduct Complex
- Bellmore Chen, Ann Mei-Tzu 17 John F. Kennedy H.S. 2989 Frankel Blvd., Merrick 11566 Evaluation of a Sequence in the 5'Control Region of the Yeast RPC40 Gene as a Potential yAP-1 Binding Site
- Bronx (NYC) Ching, William 17 Riverdale Country School 650 W. 171 St., 5D, New York 10032 Extrasynaptic Modulation of Axonal Conduction by the GABA Receptor Complexes in the Neonatal Rat Optic Nerve
- Brooklyn (NYC) Burrows, Nicole Alexis 17 Brooklyn Technical H.S. 987 E. 42nd St. 11210 Comparison of Acquaintance Rape-Supportive Attitudes and Behavior Between a H.S. Athletic Team and a Random Sample of a Male Teenage Population
- Gerald, Jessica Lee 17 Brooklyn Technical H.S. 20 Stuyvesant Oval, New York 10009 Relationship Between Stress Level and the Tendency to Abuse Alcohol Among Medical Students



Brooklyn (NYC)  
(continued)

- Lau, Denys Tsz-Wai 17 Brooklyn Technical H.S. 62-30 Dieterle Crescent, Rego Park 11374 Comparison Between the Improvements of Global Factual and Conceptual Knowledge of Students Taking the New York State Global Curriculum
- Qu, Jessica Fengjia 18 Brooklyn Technical H.S. 663 46th St. 11220 Preliminary Investigation of the Sigma Function in the Ring of Eisenstein Integers
- Traboulsi, Anjela George 18 Brooklyn Technical H.S. 7721 5 Ave. 11209 Teenage Perceptions of Whether Child Custody Decisions in the Divorce Cases of Their Parents Were In Their Best Interests
- Wong, Ying 19 Brooklyn Technical H.S. 556 Dahill Rd., Apt. 1G 11218 Difference Between the Members of the Medical Community and Biomedical H.S. Students Concerning Legalization of Drugs
- Yu, Corwin 17 Brooklyn Technical H.S. 1031 60th 11219 Attitude Comparison Between the Regular Users and Infrequent Users of Architect Designed Public Use Space in Midtown Manhattan
- Baytman, Yelena 18 Midwood H.S. 2950 Ocean Ave. 11235 Effects of Verbalization and Melody on a Unimanual Task
- Goodman, David Karl 17 Midwood H.S. 477 First St. 11215 Attitudes of the Residents of Brooklyn, New York Toward Native Americans
- Greenman, Jonathan Daniel 17 Midwood H.S. 2150 72nd St. 11204 Formation of a New Compound: Complexation of 18-Crown-6 Ether and Molecular Iodine
- Huynh, Virany 17 Midwood H.S. 1535 Ocean Ave., Apt. #3K 11230 Detection of Female Estrus via Chemical Signals in the Male Marsupial Monodelphis domestica
- Lepson, Lisa Michele 17 Midwood H.S. 2510 Ave. K 11210 Attitudes of Senior Citizens Towards Adolescents: An Analysis of the Gender and Contact Variables
- Tenedios, Felicia 17 Midwood H.S. 65 Bay Ridge Ave. 11220 Development of the Visual System in Teenagers: A Visually Evoked Potential Study
- Yau, Lucy 17 Midwood H.S. 8211 6th Ave. 11209 Perceived Authoritarian Parenting and Its Anticipated Effects Upon Students' Achievement Goals
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Cedarhurst

Centereach

Dix Hills

Flushing (NYC)

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Forest Hills (NYC)

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#### UTAH

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Tang, Daniel Giunway 17 Thomas Jefferson H.S. for Science and Technology 3706 Ridgelea Dr., Fairfax 22031 Using the Adsorptionchromism of a Spiropyran to Estimate the Surface Polarities of Various Organic and Inorganic Adsorbents

Tolin, Michael Adam 17 Thomas Jefferson H.S. for Science and Technology 2204 Starboard Pl., Woodbridge 22192 Development of Methods for Determining Dialysis Constants for Solutes Exhibiting a Range of Dialysis Rates

Fairfax Schnur, Tatiana Tamara 16 Robinson Secondary School 6009 Lincolnwood Ct., Burke 22015 Lexical Access of Ambiguities During Sentence Comprehension: Exhaustive or Terminating Search?

Falmouth Hintz, Christopher James 17 Stafford Sr. H.S. 222 Taylor St., Fredericksburg 22405 Hemispheric Independence in Visual Perception

Lynchburg Brandsberg, Erik Timothy 17 Central Virginia Governor's School for Science and Technology 200 Hunting Ln., Goode 24556-1017 Determination of the Feasibility of a Magnetically Conductive Superconductor Containing Matrix Compound by Means of a Computer Simulation

McLean Tripathi, Vandana 15 Langley H.S. 1103 Clover Dr. 22101-2000 Discovery and Characterization of Spatial Memory in Electrotropic Response of Primary Roots of *Zea mays* and *Cicer sp.*

Newport News Farassat, Daria Jennifer 17 New Horizons Governor's School 113 Stag Ter. 23602 Removing Carcinogenic Hydrocarbons From Non-Point Urban Run-Off by Designing a Storm Drain That Incorporates a Polypropylene Filter

Roanoke Turner III, James Morton 17 Patrick Henry H.S. 2405 Wycliffe Ave. SW 24014 Which Aspects of Educational Computer Display Are Most Stimulating?

#### WISCONSIN

Glendale Ancel, Lauren Weinstock 17 Nicolet H.S. 9591 N. Regent Rd., Bayside 53217 Dynamics of Circle Maps and the One-Way Property

Green Bay DeJardin, Louis John 19 Preble H.S. 507 Robert Ln. 54311 Simultaneous Calculation of 32 Vehicular Movements

Middleton Han, Albert Sanghern 17 Middleton H.S. 1408 Willow Tr. 53562 Response of the Efflux of Sodium to Tetracaine in Single Barnacle Muscle Fibers

Milwaukee Markwardt, Julie Ann 17 Rufus King H.S. for the College Bound 2970 N. Stowell Ave. 53211 In vitro Fungicidal Activity Associated With a Partially Characterized Substance Derived From *Aloe vera*

### State Science Talent Searches

Since 1946 State Science Talent Searches have been held concurrently with the National Competition by special arrangement with Science Service. The 33 States and the District of Columbia listed below are cooperating in this plan to increase recognition and assistance to young scientists.

Anyone desiring information on or details of the results of State Science Talent Searches should send their inquiries to the Directors in the respective states.

ALABAMA: Dr. Leven S. Hazlegrove, 208 Rockaway Road, Birmingham, AL 35209-6626

ARKANSAS: Dr. John D. Peck, Associate Professor, Physical Therapy Department, Suite 100, University of Central Arkansas, Conway, AR 72032



New York City (continued) Kim, Eunice Louise 17 Stuyvesant H.S. 39-60 54th St., #2R, Woodside 11377  
 Lin, Debby Ann 17 Stuyvesant H.S. 41-39 Forley St., Elmhurst 11373  
 Yang, Tien-An 17 Stuyvesant H.S. 90 La Salle St., #3A 10027  
 Setauket Lopez, Michael John 18 Ward Melville H.S. 24 Annandale Rd., Stony Brook 11790

#### NORTH CAROLINA

Durham Reiter, Ashley Melia 17 North Carolina School of Science and Mathematics 5827 Beckett Ct., Charlotte 28211

#### OHIO

Dayton Riddell, Jeremy Randall 18 The Miami Valley School 3254 Ferry Rd., Bellbrook 45305

#### PENNSYLVANIA

Pittsburgh Criss, Susan Elaine 17 Fox Chapel Area H.S. 1980 Squaw Run Rd. 15238

#### TEXAS

Spring Butin, Wade William 17 Klein H.S. 8810 Tranquil Park Dr. 77379

#### VIRGINIA

Alexandria Berkey, Judson Lawrence 17 Thomas Jefferson H.S. for Science and Technology 9123 Peabody St., Manassas 22110  
 Sadananda, Venkataramana Kuntimaddi 17 Thomas Jefferson H.S. for Science and Technology 8015 Daffodil Ct., Springfield 22152  
 Skovronsky, Daniel Moshe 17 Thomas Jefferson H.S. for Science and Technology 10705 Hunters Run Ct., Vienna 22181  
 Fairfax Schnur, Tatiana Tamara 16 Robinson Secondary School 6009 Lincolnwood Ct., Burke 22015

SCIENCE SERVICE, INC. - 1719 N Street, N.W. - Washington, DC 20036

## Finalists

of the

## Fiftieth Annual Science Talent Search

## for the Westinghouse Science Scholarships



The forty finalists of the 50th Annual Science Talent Search, among whom \$205,000 of Westinghouse Science Scholarships will be distributed, represent about 2.5% of those who completed entries in this scientific and educational competition.

Designed to discover and develop scientific and engineering ability among high school seniors, the Science Talent Search is conducted annually for the Westinghouse Science Scholarships by Science Service, 1719 N Street, N.W., Washington, DC 20036.

These 17 females and 23 males are being invited to Washington, D.C. for an all-expenses-paid trip February 28 to March 4, 1991, to attend the Science Talent Institute. Here 10 of the finalists will be selected by the board of judges to receive one of the following four-year Westinghouse Science Scholarships: one \$40,000 (\$10,000 per year), one \$30,000 (\$7,500 per year), one \$20,000 (\$5,000 per year), three \$15,000 (\$3,750 per year), four \$10,000 (\$2,500 per year). The remaining 30 contestants will be given Westinghouse Science Scholarships of \$1,000 each.

The finalists are 15 to 18 years of age and come from 27 cities in 18 states. They were picked by the judges from among 1,573 contestants who completed their entries by writing a report on their scientific research and submitting it along with an official entry form and supporting documents. Completed entries were received from 45 states, the District of Columbia, American Samoa, Guam, Puerto Rico, the Virgin Islands, and Overseas American Schools.



## Finalists -- Washington Trip Winners

AGE OF WINNER FOLLOWS NAME  
H.S. CITY IN LEFT COLUMN

HOME ADDRESS FOLLOWS NAME OF H.S.  
HOME CITY OMITTED IF SAME AS H.S. CITY

### ALABAMA

Mobile Mankad, Mehul Vipul 17 St. Paul's Episcopal School 5724 Vendome Dr. S. 36609  
Vestavia Hills Soong, Weily 18 Vestavia Hills H.S. 2355 Tyrol Pl. 35216

### CALIFORNIA

Riverside Shan, Wei-Jen Jerry 17 John W. North H.S. 5411 Osburn Pl. 92506  
Sacramento Ramachandran, Rageshree 15 Rio Americano H.S. 8541 Dominique Ct., Fair Oaks 95628  
San Gabriel Walters, Tessa Lorrell 16 San Gabriel H.S. 2244 Calle Margarita, San Dimas 91773

### COLORADO

Brighton Larson, Mark Allen 17 Horizon Sr. H.S. 4224 E. 126th Ave., Thornton 80241

### CONNECTICUT

Greenwich Kim, Don H. 18 Greenwich H.S. 15 Sundance Dr., Cos Cob 06807

### DISTRICT OF COLUMBIA

Washington Moore, Joel Ellis 17 St. Albans School 3804 Leland St., Chevy Chase, MD 20815

### FLORIDA

Vero Beach Wang, Clifford Lee 16 Vero Beach H.S. 515 Date Palm Rd. 32963

### ILLINOIS

Evanston Seeger, Joseph Izak 17 Evanston Township H.S. 1521 Greenleaf 60202  
Naperville Lee, Irwin 16 Naperville North H.S. 1006 Dakota Cir. 60563

### IOWA

Ames Ghoshal, Nupur 17 Ames H.S. 1310 Glendale Ave. 50010

### MICHIGAN

Birmingham Stec, Lori Ann 18 Detroit Country Day School 95 Braemar Dr., Troy 48098

### NEBRASKA

Omaha Chapman, Kimberly Ann 18 Marian H.S. 3631 S. 116th Ave. 68144

### NEW JERSEY

Elmwood Park Lazarev, Denis Alexandrovich 17 Elmwood Park Memorial Jr.-Sr. H.S. 3623 Gardenview Ter., Fair Lawn 07410  
Mountain Lakes Chung, Dean Ramsey 16 Mountain Lakes H.S. 60 Pocono Rd. 07046  
Raritan Lu, Stanley 17 Bridgewater-Raritan H.S. West 577 Cabot Hill Rd., Bridgewater 08807

### NEW MEXICO

Santa Fe Haight, Cameron Rea 17 Santa Fe H.S. 720 Gonzales Rd. 87501

### NEW YORK

Armonk Pederson, Cheryl Lynn 18 Byram Hills H.S. 14 Perry Ct. 10504  
Bayside (NYC) Moallemi, Ciamac 15 Benjamin N. Cardozo H.S. 69-07 226th St. 11364  
Bronx (NYC) Ching, William 17 Riverdale Country School 650 W. 171 St., 5D, New York 10032  
Flushing (NYC) Fleisig, Ani Jean-Mee 17 Townsend Harris H.S. 87-44 94th St., Woodhaven 11421  
Kodaman, Nuri Mehmet 17 Townsend Harris H.S. 225 Park Ln., Douglaston 11363  
New York City Cheung, Jim Way 17 Bronx H.S. of Science 32-38 78th St., Jackson Heights 11370  
Bahna-James, Tara Sophia 17 La Guardia H.S. of Music and the Arts 25 Montgomery St. 10002  
Haynes, Petal Pearl 18 Stuyvesant H.S. 89-30 164 St., Apt. 4J 11432  
Jeanty, Yves Jude 16 Stuyvesant H.S. 145-36 115 Ave., S. Ozone Park 11436  
Kang, Linda Tae-Ryung 17 Stuyvesant H.S. 35-70 168th St., Flushing 11358