

The MATHEMATICAL ASSOCIATION of AMERICA

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March 29, 1995

Scientific Officer Code: 311 Dr. Andre van Tilborg Office of Naval Research 800 North Quincy Street Arlington, VA 22217-5660

YOUR REF: ONR Grant No. N00014-94-1-0383

To: Andre van Tilborg

From: Marcia P. Sward/mac

At the request of Dr. Marcia Sward, I am enclosing a copy of the performance report, i.e. "Proceedings" for ONR Grant N00014-94-1-0383. The report concerns activities of the 1995 MOSP (Mathematical Olympiad Summer Program) held at the Illinois Mathematics and Science Academy (IMSA) from June 13 to July 12, 1995.

Also enclosed are forms (SF 298) and (SF 269).

Maineen Callanan

Maureen Callanan Development Assistant

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CC with encs.:

Grant Administrator/Resident Representative N66020, Atlanta GA (Attn: Charles K. Hayes) DTIC/Alexandria, VA

THIS DOCUMENT WITH ATTACHMENTS ALSO FAXED TO CHARLES K. HAYES ON MARCH 29, 1996 AT (404) 730-9260.

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13. Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.								
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Marcia P. Sward, Executive Director					202-387-5200			
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The 1995 Mathematical Olympiad Summer Program Report

The 1995 Mathematical Olympiad Summer Program (MOSP) was held at the Illinois Mathematics and Science Academy (IMSA) from June,13 to July,12. It was the first time in 22 years that the program was hosted by an institution other than the Service Academies (The United States Military Academy in West Point, New York and the Naval Academy in Annapolis, Maryland). Located in Aurora, IMSA is the state's public residential high school for talented mathematics and science students in grades 10-12. IMSA also serves as an educational laboratory for developing and testing innovative programs to share with other school systems, teachers and students in Illinois and across the country.

The main goals of the Mathematical Olympiad Summer Program are:

1. To provide a quality mathematics program for 24-30 very promising students who have risen to the top on contests. It shall insure interest in mathematics, broaden students' view of mathematics and better prepare them for possible participation on our IMO team. The program shall also provide the best example of the way mathematics instruction should be carried out.

2. To identify from among the participants in each given summer a USA IMO team. To coach this team to its highest level of performance in the IMO, and to achieve an atmosphere of comradeship and cooperation among the team and other participants.

Twenty-four students were invited to participate in the 1995 MOSP (23 males and 1 female). Titu Andreescu was the Director of the program. Paul Zeitz and Elgin Johnston were the assistant directors. Kiran Kedlaya, Lenny Ng and Stephen Wang served as student assistants. Prof. Walter Mientka, the Executive Director of the American Mathematics Competitions, who accompanied the instructors and the six IMO team members on their trip from the Washington DC USAMO Ceremonies to Aurora, the MOSP site, spent a day at IMSA and gave the opening lecture, a very interesting and inspiring presentation of Morley's Theorem.

The instructional program was structured such that it addressed constantly at least two levels (introductory, advanced and, in its final part, the IMO team). The "official" lectures were given at 9, 11 and 1pm, Monday through Friday. In addition, assistant and student lectures were given at various hours, including weekends. Students took 13 MOSP and additionally (for the IMO team and other students who expressed interest) 5 IMO tests. They were further assigned and turned in 2 MOSP and 1 IMO weekly problem sets. Two team contests and a student mathematical marathon were also designed.

This very intense academic program was balanced by two long trips to Chicago

(Museum of Science and Industry, Lake front, Taste of Chicago) and State's Park (Starving Rock), three short ones: Geneva Park, Fox Valley Mall, Fox Valley Movie Theater (Pocahantas) and by various athletic activities such as the daily ultimate frisbee, the basketball and the ping-pong tournaments.

The program was visited by Dr. Marcia Sward, the Executive Director of the MAA and by Dr. Richard Gibbs, chair of the Committee on the American Mathematics Competitions. They inspected the facilities, both academic and residential and met with the students and the instructors in a two-hour very interesting and useful open discussion. Dr. Sward met with Dr. Stephanie Pace Marshall, IMSA's Executive Director. Dr. Gibbs gave an interesting lecture about the Square-cube property.

Dr. Don Coppersmith was, again, our invited lecturer this year, through a generous IBM grant. He talked about "Polynomials whose powers are sparse". His presentation was very well received by the entire audience.

Two visiting lecturers, Asuman Oktac and Xiaodi Wang gave 2 lectures each in the last academic day of the program.

Despite the fact that the USA 1995 IMO team did not repeat the 1994 IMO performance, it appeared evident that the 1995 MOSP was the most successful ever. We have a strong inclination that the outstanding MOSP '95 work will pay dividends in 1996 and the following years.

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Titu Andreescu, Director, The Mathematical Olympiad Summer Program

AMERICAN MATHEMATICS COMPETITIONS

1995 MATHEMATICAL OLYMPIAD SUMMER PROGRAM

JUNE 13 - JULY 12, 1995

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	TUESDAY JUNE 13		Level	Level II
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	Level 1		P Graph Theory I	T Triangles
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	J T Compiliatorial Coometry	P Combinatorial Geomet	y T Trig. and Applications	
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9 11	WEDNESDAY JULY 5 Level I T Geometric Inequalities E Complex Nos in Geom.	Level II E Complex Nos. in Geom. P Ramsey's Theorems I	THURSDAY JULY 6 Level 1 T Recurrence Relations I P Ramsey's Theorems II E Approximations	Level II E Approximations T Recurrence Relations J P Ramsey's Theorems II
9 11 2	FRIDAY JULY 7 Level I K Projective Geometry E Non-IMO Talk T Recurrence Relations II	Level II T Recurrence Relations II K Projective Geometry P Non-IMO Talk	MONDAY JULY 10 Level I X Odd and Even Numbers A Euclidean Constructions SI U	Level II A Euclidean Constructions X Odd and Even Numbers DENT TALK
9 11 2	TUESDAY JULY 11 Level I X The Symmetry Method A Invariants STU	Level II A Invariants X The Symmetry Method DENT TALK	WEDNESDAY JULY 1: Level I DI P	Level II ARTURE

- A Asuman(visitor)
- E Elgin(assoc. dir.)
- K Kiran(assistant)
- L Lenny(assistant)
- P Paul(assoc. dir.)
- S Stephen(assistant)
- T Titu(director)
- W Walter(exec. dir. AMC)
- X Xiaodi(visitor)

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NEWS

FOR IMMEDIATE RELEASE Mailed: July 25, 1995

Contact: Kathleen Holmay 301-942-9595

U.S. TEAM TAKES SIX MEDALS AT INTERNATIONAL MATH OLYMPIAD -Places 11th Among 74 Participating Countries-

(Washington, DC)....Each of the six members of the U.S. team won medals at the 36th International Mathematics Olympiad in Toronto, Canada on July 19 and 20. The U.S. team placed 11th among the record number of 74 countries that participated. The top 12 teams were China, Romania, Russia, Vietnam, Hungary, Bulgaria, South Korea, Iran, Japan, United Kingdom, U.S.A. and India.

Aleksandr L. Khazanov, Brooklyn, NY, Jacob A. Lurie, Bethesda, MD, and Josh P. Nichols-Barrer, Newton Center, MA won silver medals. Khazanov and Lurie were members of last year's U.S. IMO team which received a perfect score for the first time in IMO history.

Christopher C. Chang, Palo Alto, CA, Jay H. Chyung, Iowa City, IA, and Andrei C. Gnepp, Orange, OH, won bronze medals. The six U.S. winners received their medals at the IMO closing awards presentation on July 24.

U.S. team members were selected based on their performances in the twenty-fourth annual USA Mathematical Olympiad held in April of this year. The U.S. team had four weeks of intensive training at the Illinois Academy of Math and Science in Aurora, IL before traveling to Toronto.

(more)