

# Kenneth R. Roffo Jr.

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<https://github.com/kroffo>

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## Education

|  |                  |
|--|------------------|
| B.S., Physics, Mathematics and Computer Science<br><b>SUNY Oswego - GPA 3.74</b>                       | anticipated 2017 |
| New York State Advanced Regents Diploma with Honors<br><b>John C. Birdlebough High School - GPA 91</b> | 2012             |

## Talks

|  |      |
|--|------|
| <i>A Necessary Set of Turns to Solve a Rubik's Cube.</i><br>MAA Seaway Conference, Colgate University  | 2015 |
| <i>The Necessity and Sufficiency of 5 Face Turns to Solve a Rubik's Cube.</i><br>Quest, SUNY Oswego.   | 2015 |
| <i>RR Lyrae Metallicities from CSTAR data.</i><br>Quest, SUNY Oswego.  | 2015 |
| <i>Fourier Analysis of CSTAR RR Lyrae Variable Stars.</i><br>Rochester Symposium for Physics Students, SUNY Oswego                                     | 2015 |
| <i>Metallicity determination for RR Lyraes observed from CSTAR telescopes in Antarctica.</i><br>SUNY Undergraduate Research Conference, SUNY Brockport | 2015 |
| <i>The Line Trick to Multiplying Numbers and Polynomials.</i><br>Math Club, SUNY Oswego.   | 2015 |

## Research Experience

### The Application of Abstract Algebra to Twisty Puzzles

Rubik's Cubes have fascinated mathematicians ever since they made their debut in the 1970s. Since then, many differently shaped and sized variants of the Rubik's Cube (called twisty puzzles) have become available. In this research I apply concepts I have learned in Abstract Algebra to describe these fascinating puzzles.

Advisors: **Bonita Graham, David Vampola**

Fall 2014 - Present

## **Fourier Decomposition Analysis of CSTAR RR Lyrae Variable Stars**

I began this research through a 6 week visit to India in summer 2014. My goal is to determine the metallicities of several RR Lyrae variable stars.

Advisor: **Shashi Kanbur**

Summer 2014 - Present

## **Teaching**

### **Math Club Tutoring**

2015-Present

Organized and participated in free Math Club tutoring sessions for Calculus students.

### **Math and Sciences Tutor at SUNY Oswego**

2014-Present

Courses Tutored: Calculus 1, 2 and 3, Discrete Math, Physics 1 and 2, CS intro level

### **HON 150 Seminar Leader at SUNY Oswego**

Fall 2014

Prepared and presented weekly lectures for an introduction-to-college course. Created and Graded weekly writing assignments.

## **Honors**

Honors Program - SUNY Oswego

2012-Present

[Presidential Scholarship for Academic Achievement](#) - SUNY Oswego

2012-Present

Student Involvement Award - SUNY Oswego

Spring 2015

Sigma Xi and Office for Research and Sponsored Programs Award for Excellence in Research Presentation - SUNY Oswego

Spring 2015

Dean's List - SUNY Oswego

Fall 2014

President's List - SUNY Oswego

Fall 2012 - Fall 2013

[Youth of the Year](#) - John C. Birdlebough High School

2012

Presidential Community Service Award - Corporation for National and Community Service

2012

[Senior Key in Mathematics](#) - John C. Birdlebough High School

2012

[Eagle Scout](#) - Boy Scouts of America

2011

## **Membership**

SUNY Oswego Physics Club

2014-Present

SUNY Oswego Astronomy Club - *Treasurer*

2013-Present

SUNY Oswego Math Club - *President*

2012-Present

|  |               |
|--|---------------|
| Omicron Delta Kappa National Leadership Honor Society                        | Accepted 2014 |
| Phi Kappa Phi National Honor Society   | Inducted 2014 |
| National Honor Society   | Inducted 2010 |
| Tri-M Music National Honor Society   | Inducted 2010 |
| John C. Birdlebough HS Student Council - <i>President</i>                    | 2010-2012     |
| Boy Scouts of America - <i>Quartermaster, Assistant Senior Patrol Leader</i> | 1999-2012     |

## Skills

Windows, Mac and Linux Proficient

Proficient in Python, Java and Fortran

L<sup>A</sup>T<sub>E</sub>X Proficient

Rubik's Cube Speed Solver (23 second average)

Here's a [video](#) of a solve way back when I was a 28 second solver!

Last updated: April 21, 2015