

Xu Zhu

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Education

- **Shanghai Jiao Tong University** *Sept. 2012-Present*
B.Sc. Mathematics and Applied Mathematics, Expected June 2016
 - Major GPA: 3.96/4.0(93.10/100)
 - Ranking: 1/50(major), 1/95(overall)
 - Position: Minister of SJTU Math Association (tutored students in math, organized lectures and contests)

Papers

- J. Ma, S. Ma, Y. Yeh and **X. Zhu**, The cycle descent statistic on permutations, submitted to *The Electronic Journal of Combinatorics*(2015).[arXiv]

Research Experiences

- **R.A., Cross-Disciplinary Scholars in Science and Technology (CSST), UCLA** *Jul. 2015-Sept. 2015*
Topic: Optimization Mentor: Prof. Wotao Yin, Department of Mathematics, UCLA
 - Studied operator splitting by one tutorial, two textbooks and over twenty references
 - Applied operator splitting to KKT system and obtained a new algorithm with general use
 - Established the convergence theorem and optimized our variables with numerical tests on MATLAB
 - Completed an academic poster and presentation slides with beamer
- **Participant, Research Group of Enumerative Combinatorics, SJTU** *Feb. 2015-Present*
Topic: Enumerative Combinatorics Mentor: Prof. Jun Ma, Department of Mathematics, SJTU
 - Worked on the star-marked problems of Stanley's *Enumerative Combinatorics*
 - Discovered new formulas and established corresponding bijective proofs on cycle-descent permutations
 - Established bijection between cycle-descent permutation and Callan perfect matching
 - Completed a joint paper on our results with L^AT_EX and Coreldraw
 - Revised and submitted the paper to *The Electronic Journal of Combinatorics* as a co-author
- **Participant, Undergraduate Research Program, SJTU** *Feb. 2014-Dec. 2014*
Topic: Soliton Equation Mentor: Prof. Guofu Yu, Department of Mathematics, SJTU
 - Studied soliton equation, bilinear operators and Pfaffian by textbooks and references
 - Practiced Hirota's Direct Method with Maple programming and solved KdV equation
 - Solved an open problem of coupled Ito equation with multi-component generalizations
 - Completed a publishing-level paper on my results with L^AT_EX and Maple
- **Participant, Undergraduate Mentor Program, SJTU** *Sept. 2013-Jun. 2014*
Topic: Algebraic Combinatorics Mentor: Prof. Eiichi Bannai, Department of Mathematics, SJTU
 - Attended the weekly seminars, studied the fundamental coding theory and gave one talk
 - Worked on open problems of Coding and Design and achieved group results
 - Completed an academic report with L^AT_EX on an assigned paper of Kissing Number Problem

Talks

- The cycle descent statistic on permutations, Combinatorics Seminar, SJTU *Dec. 2015*
- The problem of thirteen spheres – a proof for undergraduates, Combinatorics Seminar, SJTU *Nov. 2015*
- Operator splitting on KKT system, CSST Final Presentation, UCLA *Sept. 2015*
- Multi-component generalizations of the coupled Ito equation, PRP Thesis Defense, SJTU *Oct. 2014*

Selected Awards

- **Meritorious Winner(10%), Mathematical Contest in Modeling, U.S.** *Feb. 2015*
 - Applied SEIR Epidemic Model and Nash Equilibrium to our problem
- **Individual High Scorer(22/4000), American Regions Mathematics League, U.S.** *Jun. 2011*
 - Represented China Team, 15 among 80,000 candidates
 - Received undergraduate invitation from Chair Arthur Ogus of Berkeley's Mathematics Department

Skills

- Maple, MATLAB, Mathematica, SAS, R, C, C++, Python, L^AT_EX, HTML