Jessica J. Zhang

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Education

Harvard University *(GPA: 4.0 of 4.0)*   August 2021–present

Majoring in math. Graduate-level math courses include low-dimensional topology, Riemann surfaces, and algebraic topology. John Harvard Scholar and Detur Prize recipient. Member of *The Harvard Advocate* poetry board.

Proof School *(GPA: 5.0 of 5.0)*   August 2017–June 2021

Courses included algebraic geometry, knot theory, differential topology. Took independent study courses covering smooth manifolds (following Lee), Morse theory (following Milnor), and contact geometry (following Geiges).

Experience

MIT Juvitop Seminar   January 2023–present

Studied Floer homotopy theory in the Juvitop Seminar, a graduate-level learning seminar in algebraic topology.

UC Davis Pure and Applied Math REU   June–August 2022

Under Professor Roger Casals, found arboreal Lagrangian skeleta for a family of 4-manifolds, namely those with one 0-cell, one 2-cell attached along a *(2,n)*-torus knot, and one 4-cell. Preprint in progress.

Harvard Directed Reading Program   January 2022–present

Studied Morse and Floer theory, along with real and functional analysis for symplectic geometry, with Maxim Jeffs. Wrote an expository article on the Arnol'd conjecture and gave a presentation on Sobolev spaces.

MIT PRIMES-USA   January–December 2020

Fully classified tight contact structures on solid tori with Dr. Zhenkun Li. Gave talks at the Joint Mathematics Meetings, the Math ROCs conference, and the annual MIT PRIMES conference.

Honors

Regeneron ISEF Finalist   May 2021

Placed 2nd among math research projects in the highest level of international competition for high school researchers. Received the first place prize for the American Mathematical Society's Karl Menger Memorial Award.

Regeneron Science Talent Search Finalist   March 2021

Named a top 40 finalist in the 2021 Regeneron Science Talent Search, considered "the nation's oldest and most prestigious STEM research competition."

S.-T. Yau High School Awards USA Bronze Medalist   November 2020

Won the national bronze medal for math research in a competition organized by Fields Medalist Shing-Tung Yau.

Papers

Classification of tight contact structures on a solid torus   `arXiv:2006.16461`
With Z. Li
Math. Res. Lett., to appear

Exponents of Jacobians of graphs and regular matroids   `arXiv:1910.06442`
With H. Lheem, D. Li, and C. J. Quines
Rose-Hulman Undergrad. Math. J. (2020)