

YoungJu Choie (b. 15 June 1959)

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Essay by Daniel Rogers

Wikipedia: https://en.wikipedia.org/wiki/YoungJu_Choie

Homepage: <https://yjchoie.postech.ac.kr/>

YoungJu Choie is a South Korean mathematician and professor of mathematics at the Pohang University of Science and Technology; she has also taught at Ohio State University, University of Maryland, and University of Colorado. She earned her bachelor's degree in mathematics at Ewha Womans University in 1982 and her PhD at Temple University in 1986. Choie wrote her dissertation *Rational Period Functions for the Modular Group and Real Quadratic Fields* with the help of her advisor Marvin Knopp. Choie's research interests include number theory and modular forms. Her most cited publication, "Rational period functions for $PSL(2, Z)$," incorporates number theory and modular forms in discussion of rational period functions. Choie has also worked with Jacobi forms, proving upper bounds on the first sign change of Fourier coefficients of cusp forms. While Choie doesn't have too much overlap with Ramanujan's work, they both have done most of their respective work in the field of number theory.

I recently was graced with the opportunity to meet and interview Dr. Choie over Zoom. Through this, I was able to learn about some of her inspirations. Early in her life, Dr. Choie found herself pondering life and love; she saw that friendships and relationships did not last forever and wondered what possibly could last forever. Dr. Choie found that math is a universal, eternal truth and committed to becoming a mathematician. Some inspirations throughout her life

include her advisor Marvin Knopp, Marie Curie, and the few female South Korean professors she met early in her life. One event that has impacted Dr. Choie's career occurred in 1986 at Ohio State University in her first ever lecture. One student, expressing surprise, said that Dr. Choie was the first female Asian professor that he had ever met. From this point on, Dr. Choie resolved to work even harder so that all of her student would be positively affected. Upon her return to Korea in 1990, this feeling remained true: she was one of the only female professors in the country. She also returned to Korea with a new, freer mindset, inspired by the variety and diversity of the United States. One interesting tidbit that Dr. Choie provided me with was her observation that most mathematicians contemplate one or two unsolved problems when they can, for example: Clay Mathematics Institute's Millennium Prize Problems and polynomial time integer factorization.