



NSF Waterman Prize

Mathematician Melanie Wood receives prestigious 2021 award

Congress established the [Alan T. Waterman Award](#) in August 1975 to mark the 25th Anniversary of the National Science Foundation and to honor its first Director. The annual award recognizes an outstanding young researcher in any field of science or engineering supported by the National Science Foundation. In addition to a medal, the awardee receives a grant of \$1,000,000 over a five-year period for scientific research or advanced study in the mathematical, physical, biological, engineering, social, or other sciences at the institution of the recipient's choice.

The National Science Foundation (NSF) named two awardees in 2021:

- **Nicholas Carnes**, Creed C. Black Associate Professor of Public Policy and Political Science at Duke University and
- **Melanie Matchett Wood**, Professor of Mathematics at Harvard University and Chancellor's Professor at the University of California at Berkeley.

Dr. Wood is recognized for her pioneering [research](#) motivated by questions related to number theory. She has provided new insights into some of the oldest and most difficult problems in mathematics, those associated with integers and prime numbers. Her signature contributions to modern mathematics have come from innovative syntheses of ideas and techniques from many different areas of mathematics, including topology, algebraic geometry, and probability. Dr. Wood has established deep results in the subject of random matrices. She has provided the state-of-the-art estimates for the probability that a square random matrix is singular. Some of Dr. Wood's most cited work on random matrices, random graphs, and random sandpiles, should have downstream applications in both physics and statistics. Dr. Wood also developed a nonabelian analogue of the Cohen-Lenstra heuristics, in which class groups are replaced by Galois groups of nonabelian extensions of a varying number field.