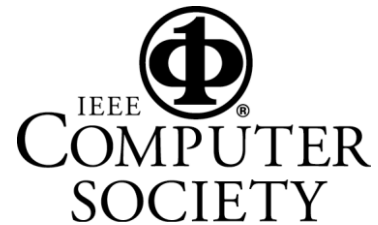


PRINCETON ACM / IEEE-CS CHAPTERS
JANUARY 2026 JOINT MEETING



The Quest for the Largest Known Prime Number

The quest to discover a new largest known prime requires the development of advanced computational techniques and the development of fault resilient software. It's not just for big primes: we can also apply these approaches to complex and resilient computations in seismic analysis, large scale fluid dynamics, cryptography, and deep space probe design.

The search for large primes has been going on for centuries. In 1952, primality testing entered the realm of digital computers. We have come a long way since the 1970s when Landon Noll discovered a 6533-digit prime (www.isthe.com/chongo/tech/math/prime/m21701.html). Today's largest known prime (www.isthe.com/chongo/tech/math/prime/mersenne.html#largest) is over 25 million digits long!

The calculations required to test extremely large numbers for primality are tricky. They must be designed to overcome compiler and assembler errors and CPU calculation errors. The reason for such extreme measures is that the length of the primality search often exceeds the mean time to error of the calculating system. A slow and correct answer is infinitely preferable to a fast but incorrect answer. The world record goes neither to the fastest coder nor to the person with the fastest hardware but rather to the first result that is proven to be correct.

In the talk, Landon will explain how the test for primality is performed, and he will outline an optimal search strategy for finding a new largest known prime. NOTE: Knowledge of advanced mathematics is NOT required for this talk.

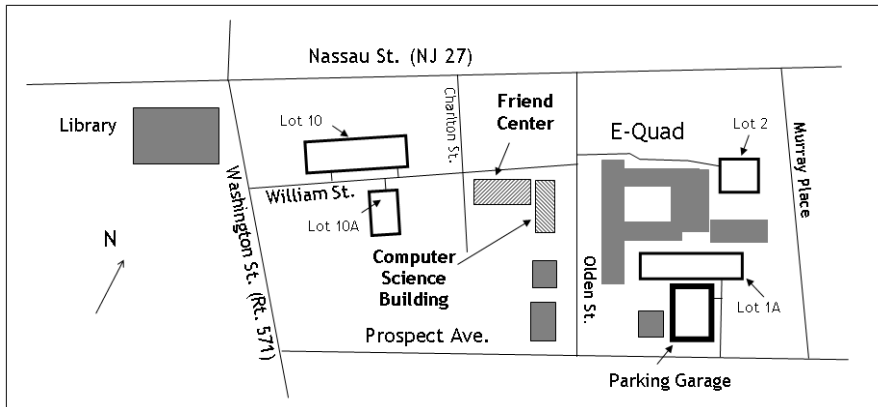
During this talk, a subset of these slides will be presented: <http://www.isthe.com/chongo/tech/math/prime/prime-tutorial.pdf>

Landon Curt Noll is an astronomer and a lifelong computer enthusiast. Landon has held or co-held eight world records relating to the discovery of large prime numbers. Landon has done work in planetary science, computer science, cryptography, and computational number theory. He helped start the International Obfuscated C Code Contest. As a Cryptologist and Security Architect, he participated in the development of the IEEE P1619 cryptographic protection standard. Landon is a member of the American Mathematical Society and an associate of the American Astronomical Society.

Date: Thursday, January 15, 2026, 8:00pm EST
Place: HYBRID MEETING (both in-person and online)
In Person: Princeton University Friend Center – Room Friend 004 79 William St., Princeton NJ (NOTE: this room is different from our normal meeting room – It is on the lower level of the Friend Center – enter on William St.)
How to get the Zoom link for the online meeting:
• Send email to PrincetonACM@gmail.com
• OR look up the meeting on Meetup.com (https://meetup.com/IEEE-Princeton-Central-Jersey-Section)
• OR visit https://manclswx.com/acmzoom.html
Information: Dennis Mancl (908) 285-1066
On-line info: http://PrincetonACM.acm.org

All Princeton ACM / IEEE Computer Society meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner is held at 5:45 p.m. at Applebee's (3330 US 1, Lawrenceville, near Quakerbridge Mall). Please send email to princetonacm@gmail.com in advance if you plan to attend the dinner.



Parking: After 4pm on weekdays, public parking is permitted in most of the university parking lots near the Computer Science Building.

See the Visitor Parking link on the Princeton Transportation website, <http://www.princeton.edu/transportation/visitors.html>, for a summary of Princeton's policies.

On-street parking on Olden, William, and Charlton requires paying the electronic meters until 8pm.