



**Nathan Seiberg**

Institute for Advanced Study

**January 31, 2022 at 4:00 p.m.  
on Zoom**

## Quantum Field Theory and Beyond

We will review the status of Quantum Field Theory (QFT) and will present it as “the language of physics.” Using examples from string theory and condensed matter physics, we will motivate the fact that the standard framework of QFT should be extended. As specific examples, we will review the phenomena of fractons, which do not seem to fit the standard framework of continuum QFT. We will then present recent attempts to incorporate fractons in a slightly generalized version of quantum field theory.

Biography: Nathan Seiberg is a theoretical physicist at the Institute for Advanced Study in Princeton, NJ. His work focuses on diverse aspects of string theory, quantum field theory, condensed matter physics, and particle physics. With various collaborators, he has found exact solutions of many quantum field theories. These solutions have surprising applications to physics and mathematics, leading to new and unexpected insights. He has received many awards including the MacArthur Foundation Fellowship, the Dannie Heineman Prize of the American Physical Society, the Breakthrough Prize in Fundamental Physics, and the Dirac medal of the ICTP. He is a Fellow of the American Academy of Arts and Sciences and a Member in the National Academy of Sciences.

Host: David Poland

<https://yale.zoom.us/j/93877032663?pwd=UnYram1TS1VXUjNidFpFTHZTRDVWdz09> (passcode: 863491)

*Physics Club is a weekly colloquium of general interest to the Department of Physics, Applied Physics, Astronomy, and Mathematics. The series is aimed at graduate students, postdoctoral researchers, research staff and faculty. The name dates to the late 1890s, the era of J Willard Gibbs, who influenced the intellectual life at Yale through a number of “graduate clubs”. Physics Club is sponsored by the Yale Physics Department and Yale University.*

