

STEM Webinar Sessions

July Sessions

July 15th, 2020

2020
BOBCAT SUMMER STEM
ACADEMY
VIRTUAL EDITION



Knots in Fluids (and other places you wouldn't expect them)

Knots are a familiar part of everyday life, but you might be surprised to learn they are also an active area of research in mathematics. Remarkably, knots have also found their way into physics, where they have shown up in a variety of surprising places like fluid dynamics. Scientists often describe fluid flows in terms of 'vortex lines', which are essentially just straight or curved lines around which a fluid spins: examples include tornadoes and smoke rings.

Starting in 2010, Dr. Kleckner conducted a series of experiments to answer a question first posed 150 years ago: if you tie a vortex into a knot, does it stay knotted like a piece of string would? The answer is... complicated. In this talk, he will give an overview of how scientists and mathematicians think about knots. He will also talk about what took to create vortex knots in real experiments, and about potential connections to the behavior of DNA and solar flares on the surface of the sun.

Presenter:

Dr. Dustin Kleckner

About the Presenter:

Dustin Kleckner is an experimental physicist who has worked in a variety of areas from quantum optics to soft condensed matter physics. He obtained his PhD from UC Santa Barbara in 2010, after which he did postdoctoral research at the University of Chicago and then joined the faculty in Physics at UC Merced in 2015. His research deals with a variety of problems in soft matter physics and fluid dynamics.

Website: <https://faculty.ucmerced.edu/dkleckner>

Who is the webinar session open to?

Grades 9th-12th (High School), Teacher, Community members, Undergrads

When is the session:

- **July 15th: 3pm to 4pm**

How can you register?

Zoom Registration Link Below:

<https://ucmerced.zoom.us/meeting/register/tJAqc-yvqjstG9DsE58Ca12dq30aTydgX3ls>