

You are welcome to nominate speakers to colloquium@nao.cas.cn. The video and slides of previous colloquia and more information can be found at <http://colloquium.bao.ac.cn/>.

# 国台学术报告 NAOC COLLOQUIUM

## 2019 年第 18 次 / No. 18 2019

Time: **Wednesday 2:30 PM, Sep. 18<sup>th</sup>**

Location: **A601, NAOC**

## Construction, Evolution, and Helicity Analysis of Knotted Vortex/Magnetic Tubes

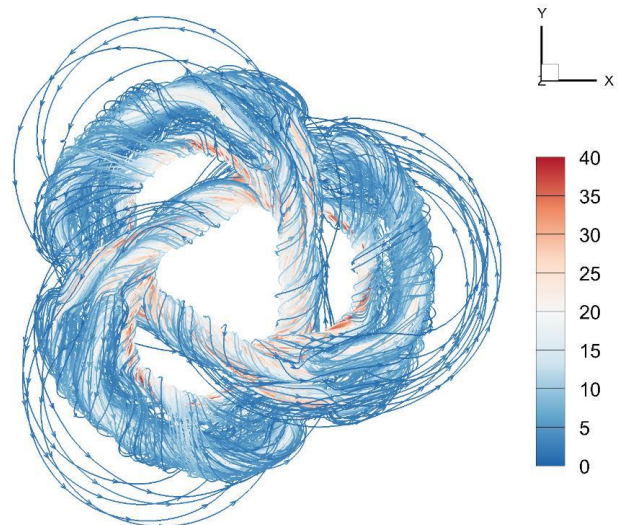
**Dr. Yue Yang**  
**Peking University**



Dr. Yue Yang received BE degree from Zhejiang University in 2004, MS degree from the Institute of Mechanics, CAS in 2007, and PhD degree from Caltech in 2011, then he was sponsored by the CEFRC Fellowship for postdoc research at Princeton University and Cornell University. Yang joined the College of Engineering, Peking University in 2013, and received the “Qiu Shi Outstanding Young Scholar Award” and the NSFC “Excellent Young Researcher” award. His research interests include turbulence, transition, and combustion.

### Abstract

We develop a general method for constructing knotted vortex/magnetic tubes with the finite thickness, arbitrary shape, and tunable twist. For the knotted tubes, the central axis is determined by a given parametric equation, and the helicity can be explicitly decomposed into the writhe, localized torsion, and intrinsic twist. We construct several knotted vortex/magnetic tubes with various geometry and topology, and investigate the effect of twist on their evolution in hydrodynamic/magnetohydrodynamic flows using direct numerical simulation.



*All are welcome ; Tea and coffee will be served at 2:15 PM.*