

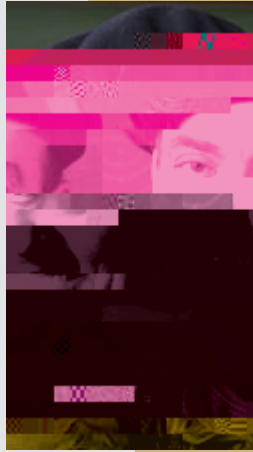
## From Stochastic Modeling to Fractional Modeling: New Tools in Large-Scale Simulations

George Em Karniadakis | Charles Pitts Robinson & John Palmieri  
Barstow Professor of Applied Mathematics, Brown University

Friday, April 4 | 4:00-5:00 p.m. | ECCR 200

In many simulations in fluid and solid mechanics — but even in molecular simulations — there are many sources of uncertainty, anomalous dynamics and memory effects, such as those associated with material properties, boundary conditions, and strong heterogeneity or confinement. These phenomena cannot be captured with the standard tools of computational mechanics. Such effects may contribute to large errors in simulation, often much larger than spatio-temporal errors, leading to erroneous dynamics or performance predictions. Karniadakis will present new stochastic modeling approaches, as well as deterministic fractional models that provide more flexibility and possibly greater rigor in quantifying and predicting

For more information on this seminar, contact Prof. Alireza Doostan at [doostan@colorado.edu](mailto:doostan@colorado.edu)



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