



UNIVERSITY OF
MARYLAND

THE BURGERS PROGRAM FOR FLUID DYNAMICS
FLUID DYNAMICS REVIEWS SEMINAR SERIES

NONEQUILIBRIUM FLUCTUATING HYDRODYNAMICS



Friday, February 28, 2020 | 11am - 12pm
2164 Martin Hall, DeWALT Seminar Room

Guest Speaker

DR. JAN V. SENGERS

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ABSTRACT

Fluctuating hydrodynamics is based on Onsager's hypothesis that the regression of thermal fluctuations is governed by the hydrodynamic equations. Fluctuating hydrodynamics has been primarily used to describe thermal fluctuations in fluids in thermodynamic equilibrium states. Extension of fluctuating hydrodynamics to fluids in nonequilibrium states has revealed that, in contrast to equilibrium fluctuations, nonequilibrium fluctuations become gigantic and extend over the entire system, even far away from any hydrodynamic instability. This discovery has led to a variety of experimental studies of nonequilibrium fluctuations that will be reviewed. Most recently, it has been predicted that these fluctuations will cause a new type of fluctuation-induced Casimir force in confined liquid layers, possibly opening a new field of nonequilibrium micro-mechanics.



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