This school will provide interactive experiences with hands-on research involving table-top experiments with computer data acquisition and computational modeling. The laboratory experiences, lectures, and modeling will focus on complex systems in the physical and life sciences. The faculty will be eminent scientists who have conducted frontier table-top research published in leading international scientific journals.

**TOPICS AND FACULTY:**

**Neural Networks** – mathematical modeling (D Cai, Shanghai Jiao Tong U)  
**Boolean Networks** – network dynamics (DP Lathrop, U Maryland)  
**Animal Locomotion** – video image analysis (DI Goldman, Georgia Tech)  
**Diffusion and Transport** – tracking individual particles (E Weeks, Emory U)  
**Biological Tissue** – mechanical oscillations (EM Schoetz, Princeton U)  
**Cell Migration** – mechanisms from cell shapes (E Rericha, Vanderbilt U)  
**Granular Media** – packing and forces (J Zhang, Shanghai Jiao Tong U)  
**Nonlinear Optics** – dynamics and instabilities (R Roy, U Maryland)  
**Bifurcations & Chaos** – electrical oscillators (A Sen, Inst. Plasma Res., India)  
**Synchronization** – chemical oscillators (K Showalter, West Virginia U)  
**Arduino Microcontrollers** – use in experiments (T Murphy, U Maryland)  
**Turbulence** – flow analysis by imaging particles (M Schatz, Georgia Tech)  
**Fluid Instabilities** – identification by spectral analysis (H Swinney, U Texas)  
**Modeling with MATLAB**: dynamics and weather (BR Hunt, U Maryland)  
**Modeling with MATLAB**: dynamics and fluid flows (B Storey, Olin College)  
**MATLAB and Molecular Dynamics** (M Shattuck, City College of New York)  

**DIREKTORS:**  
D Cai and HP Zhang (Shanghai Jiao Tong U),  
J Niemela (ICTP),  
R Roy (U Maryland),  
K Showalter (W Virginia U),  
HL Swinney (U Texas).  

**ASSOCIATE DIREKTORS:**  
M Schatz (Georgia Tech) and M Shattuck (City College–New York)  

**National Organizing Committee:**  
David Cai (chair),  
Xianfeng Chen, and Xiangdong Ji (SJTU); Xiaofeng Jin (Fudan U);  
Kunquan Lu (Inst. of Physics, CAS); Yiqiang Ma (Nanjing U & Soochow U); Qi Ouyang (Peking U); Jian Shen (Fudan U);  
Wei Wang (Nanjing U); Fuchun Zhang (Zhejiang U & Univ. of Hong Kong); Weiping Zhang (East China Normal U);  
Luwei Zhou (Fudan U)  

**APPLICATION DEADLINE:**  
1 DECEMBER 2011