

## Toys and Mechanisms

an invited symposium at APS March Meeting 2014, Denver, CO



W. Pauli and N. Bohr contemplate spin (photo: AIP archives)

Toys have long captured and stimulated the imaginations of scientists. The snap bracelet, slinky, rattleback, tippe top, gee haw whammy diddle, and other devices built for amusement often challenge our understanding of angular momentum, friction, rigid body contact kinematics, and other nonintuitive “elementary” physics. Improvised toys like the chain fountain have brought the attention of millions to mechanics and dynamics on the internet.

We intend this session to serve as a starting point for discussion of topics related to toys and mechanisms of all types, with input from classical mechanics, dynamical systems, soft matter physics, education, engineering, robotics, and mathematics. Topics of interest include balance, snapping and buckling, twirling and rotation, inertia, friction, impact, clatter, confinement, obstruction, ratcheting and reciprocation, geometric phase and anholonomic constraints. There will be an emphasis on classroom and public demonstrations. We hope to stimulate interaction between students, educators, toymakers, amateur and professional scientists, and others with a shared interest in these fun and challenging problems.

### Invited Speakers:

**Andy Ruina**, Mechanical Engineering, Cornell

**Tadd Truscott**, Mechanical Engineering, BYU

**Beverley Taylor**, Physics, Miami U

**Dominic Vella**, Mathematics, Oxford

**Pierre-Thomas Brun**, Engineering, EPFL

### Organizers:

James Hanna (Engineering Science and Mechanics, Virginia Tech)

Evan Hohlfeld (Physics, UMass Amherst)

Douglas Holmes (Engineering Science and Mechanics, Virginia Tech)

Pedro Reis (Mechanical Engineering & Civil and Environmental Engineering, MIT)

Sponsored by the Topical Group on Statistical & Nonlinear Physics (GSNP)

