

Prof. Eran Bouchbinder

Physics

The Weizmann Institute of Science

Eran Bouchbinder received his first degree in physics and philosophy in the framework of the special program for outstanding students at Tel-Aviv University, and the second and third degrees in theoretical physics at Weizmann Institute of Science. He performed his postdoctoral research at the Racah Institute of Physics at the Hebrew University. Late in 2009 Eran joined Weizmann Institute of Science as a faculty member.

The research of Eran and his group focusses on the theoretical understanding of the physics of complex systems driven far from equilibrium. It addresses, for example, questions such as “How do things break?”, “How does a liquid become a disordered solid?”, “How do things slide one over the other along frictional interfaces?”, “How do solids deform and flow irreversibly under strong driving forces?”, “Can we develop a non-equilibrium thermodynamic theory?” and “How do cells act on their environment, sense it and dynamically respond to various physical constraints?”. The research aims at understanding basic principles and at developing quantitative macroscopic theories with predictive powers, and is performed in collaboration with various experimental and computational groups. The group’s work has implications in various fields such as statistical physics, condensed-matter physics, biophysics, applied mathematics, materials science, solid mechanics and geophysics.