

ART

Pinball wizardry

A European show reveals new ways of thinking about energy, **Daniel Cressey** learns.

What is energy? For the past two years, a group of 27 European physicists, architects and artists have been working together to build installations that illuminate different aspects of the concept. Developed initially for the 2010 Venice Architecture Biennale, the fruits of their labours are on show this month at London's Architectural Association (AA) School of Architecture.

The exhibits in *Beyond Entropy* include an impossible pinball machine, with hundreds of balls in play inside a clear box, their energy just out of reach once they shoot behind a mirrored divider. Another recreates a 'time machine', proposed in 1899 by French absurdist writer Alfred Jarry, from an array of giant wooden flywheels. Holograms and images of the Moon's cratered surface also show how energy may be embodied in pictures.

These collaborative pieces are the brainchild of Stefano Rabolli Pansera, an Italian architect who teaches at the AA school. After worrying about the disappointingly conventional approach to energy that most designers take, Pansera sought new ways of thinking from other disciplines. He hopes that the show will inspire fresh approaches from architects — and that it will also set the minds of those who are interested in physical concepts spinning in new directions.

The project aims to consider energy as a broad concept, related to the idea of continuous transformation. Eight small teams



A prototype 'time machine' based on an 1899 idea explores the theme of mechanical energy.

of researchers, each including an artist, an architect and a scientist, explored energies electrical, mechanical, potential, mass, sound, thermal, chemical and gravitational. The groups visited CERN — Europe's particle-physics lab near Geneva, Switzerland — to see the enormous amounts of energy being consumed there, and developed their ideas in workshops.

Andrew Jaffe, a cosmologist at Imperial College London, worked on the time machine. Tasked with exploring mechanical energy, his team discussed Jarry's early expression of time as a fourth dimension in his 1899 pseudoscience treatise *How to Construct a Time Machine*. They built a version of his fantasy mechanism, consisting of "three rapidly rotating gyrostats with shafts parallel to the three dimensions of space".

"I found it fascinating that Jarry wrote his piece around the same time as H. G. Wells's *The Time Machine* and well before Einstein. The idea of time as a fourth dimension must have been bouncing around in the popular

culture", says Jaffe.

Roberto Trotta, also a cosmologist at Imperial College London, who worked on the pinball machine

developed by the potential-energy team, said he welcomed the fact that the cross-disciplinary conversations went beyond the normal 'top-down' popular lectures that he regularly gives. "I also want to explore a more level approach, where there is an ongoing reflection and dialogue," he explains, "where the scientist doesn't just show up and tell people how nature actually works."

How some of these weird and wonderful creations relate to energy is not always obvious at first glance. But this could be part of the group's plan. "We will be happy if people come away confused," says Trotta. "Not in a bad way, but rather, inspired to think of energy from a different perspective." ■

Daniel Cressey is a reporter at Nature.



'Impossible pinball' exploits potential energy.