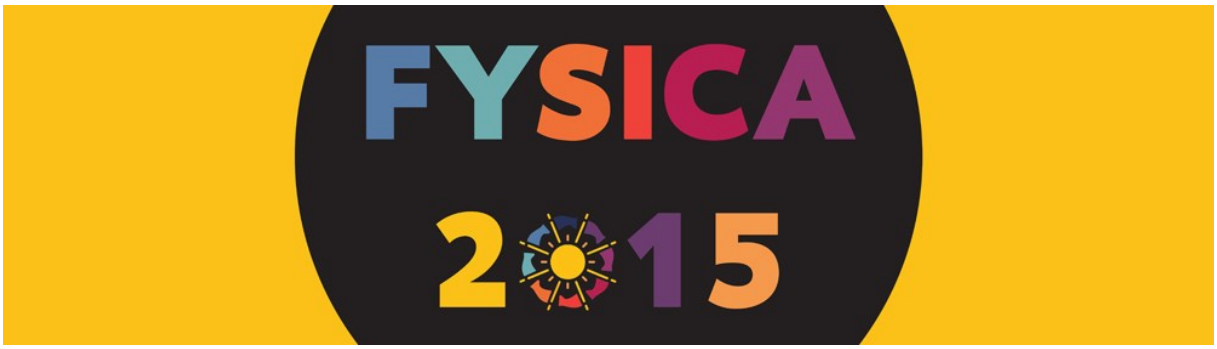

TU/e
10 April 2015

Plenary lecture

Erik Verlinde (UvA) - A new theory of gravity

Abstract:

Erik Verlinde (UvA) – A new theory of gravity
Recent studies in string theory and black hole physics reveal a deep connection between the structure of space-time and gravity and key concepts of quantum information theory. A central role in these developments is played by quantum entanglement and its associated entanglement entropy. This new view on gravity and space-time has particularly important implications for cosmology, where it leads to a natural explanation of the observed phenomena associated to dark energy and dark matter. Following these insights, I will present a universal equation for the dark matter distribution in galaxies, clusters, and our universe, which successfully describes the observed velocity profiles, gravitational lensing effects, and measurements of the cosmic dark matter density.