

Applying physics to mathematics

Tadashi Tokieda
Stanford University

Humans tend to be better at physics than at mathematics. When an apple falls from a tree, there are more people who can catch it—they physically know how the apple moves—than people who can compute its trajectory from a differential equation. Applying physical ideas to discover and prove mathematical results is therefore natural, even if it has seldom been tried in the history of science. (The exceptions include Archimedes, some old Russian sources, a recent book of Levi's, as well as my articles and lectures.) A variety of examples will be presented.