



MITMECHE

Rohsenow

Mechanical Engineering Rohsenow
Lecture in Heat and Mass Transfer

Life and Evolution as Physics



Adrian Bejan

J.A. Jones Distinguished Professor

Duke University (MIT 1971, 1972, 1975)

Friday, October 21st, 4:00PM in 3-270

What is evolution and why does it exist in the geophysical, biological, social and technological realms – in short, everywhere? Why is there a time direction – a time arrow – in the changes we know are happening every moment and everywhere? Why is the future different than the past? These are questions of physics, about everything. The physics answer is that nothing lives, flows, moves and morphs unless it is driven by power. The power is destroyed by the flows, and because of freedom the flow architectures evolve into configurations that provide greater access for movement. This universal tendency to evolve was placed in physics by the constructal law (1996). In this lecture, I show why this law is useful. We are the evolving “human & machine species.” Evolution can be witnessed and put to use in our lifetime in technology, transportation, urban design, athletics, spreading and collecting, miniaturization, communications, science, government and the unstoppable march to freedom, access, wealth and knowledge.

The lecture is based on the book:

THE PHYSICS OF LIFE: The Evolution of Everything
(St. Martin's Press, New York, 2016).