



Chaotic dynamics in the physical sciences (Lewis Fry Richardson Medal Lecture)

Edward Ott

University of Maryland, United States (edott@umd.edu)

Chaos was discovered at the end of the 19th century by Poincare in his famous work on the motion of $N > 2$ celestial bodies interacting through gravitational attraction. Although steady progress was made by mathematicians following Poincare's work, the widespread impact and development of chaos in the physical sciences is comparatively recent, i.e. approximately starting in the 1970's. This talk will review and comment on this history and will give some examples illustrating the types of questions, problems and results arising from perspectives resulting from the widespread participation of physical scientists in chaos research. One of these examples will be from our work on data assimilation for weather prediction [Ott et al., *Tellus A* vol.56, 415 (2004); Patil, *Phys. Rev. Lett.* vol.86, 5878 (2001)].