

EINLADUNG

ZU

einem didaktischen Vortrag

im Rahmen der Habilitation von

Jitka Polechová, PhD
(Fakultät für Mathematik, Universität Wien)

**“The effects of feedback between evolutionary and
ecological dynamics”**

“The effects of feedback between evolutionary and ecological dynamics”

Abstract: There is a surge of interest in evolutionary ecology, which studies the importance of the interaction between ecological (population) dynamics and evolutionary dynamics. Evolution affects ecology: ecological parameters, such as population growth rate, reflect the degree of adaptation. If selection is too strong, the population may go extinct. At the same time, ecology has an effect on evolution. Both the direction and the effectivity of evolution can change with the population size, which is determined by the ecological dynamics. In small populations, stochasticity becomes important, rendering selection less effective. Hence, the degree of maladaptation increases. In turn, both population growth rate and attainable population size may decline – creating a strong positive (albeit detrimental) feedback loop. I review the kinds of interactions which arise when ecological and evolutionary dynamics are considered jointly, and give examples of the mathematical techniques to study the joint dynamics. For example, ecological dynamics is typically much faster than evolutionary dynamics, and hence “quasi-equilibrium” for the population size can be used to separate the time scales of ecology from evolution.

**7. Oktober 2019,
13:00 Uhr – 13:45 Uhr,**

**Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
HS 17, 2. OG.**

Josef Hofbauer