

ON SOME CLASS OF DEGENERATE PARABOLIC SYSTEMS
ARISING IN THE MODELLING OF BIOFILMS.

MESSOUD EFENDIEV

Technical University of Munich, Germany

In my talk a nonlinear density dependent system of reaction-diffusion equations describing spatial spreading of biomass during the development of microbial films is analyzed. It comprises two non-standard diffusion effects, degeneracy as in the porous medium equations and fast diffusion. In particular, it is shown that the global existence (in time) of the model solutions depends on the boundary conditions. The existence of a global attractor of the corresponding semigroup is proved and its fractal dimension is estimated. Recent developments related to multi-component systems as well as hydrodynamical and chemotaxis effects will be discussed.