

# COMPUTER SIMULATION OF VIRUS SPREADING DYNAMICS

Summary - A dynamic model combining multiagent systems, social network analysis and contagion theories is presented. The possibilities of its application in epidemiological modelling are investigated. In the model, typical social network based on a directed graph was extended with sociological mechanisms of communicative behavior, system theory of communication and resource flow. The proposed approach follows realistic social time modelling. The network is updated in recurrent cycles. Network properties are modified by ongoing communication, new links are established and existing ones are updated. In opposition to our approach, other known methods to simulate spreading of SARS virus, like that of Huang et al. [2004], where authors introduce the „smallworld model that makes use of cellular automata with the mirror identities of daily contact social networks” make use of static network structure. In order to simulate virus spreading the computer software in Java based on Repast Toolkit was developed and used with several contagion mechanisms and multiple communication models.