Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Human mobility in an emerging epidemic: a key aspect for response planning CHIARA POLETTO, PAOLO BAJARDI, VITTORIA COLIZZA, JOSE J. RAMASCO, MICHELE TIZZONI, ISI Foundation, Turin, Italy, ALESSANDRO VESPIGNANI, School of Informatics and Computing, Indiana University, Bloomington, IN, USA — Human mobility and interactions represent key ingredients in the spreading dynamics of an infectious disease. The flows of traveling people form a network characterized by complex features, such as strong topological and traffic heterogeneities, that unfolds at different temporal and spatial scales, from short ranges to the global scale. Computational models can be developed that integrate detailed network structures based on demographic and mobility data, in order to simulate the spatial evolution of an epidemic. Focusing on the recent A(H1N1) influenza pandemic as a paradigmatic example, these approaches allow the assessment of the interplay between individual mobility and epidemic dynamics, quantifying the effects of travel restrictions in delaying the epidemic spread and the role of mobility as an additional source of information for the understanding of the early outbreak.

Chiara Poletto
ISI Foundation, Turin, Italy

Date submitted: 09 Dec 2009 Electronic form version 1.4