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Epidemics and Human Mobility

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The severity of infectious diseases and epidemics increases drastically, when pathogens start being transmitted between humans, as thereby they can dispose of human traffic networks for their spreading. This can transform an epidemic into a worldwide threatening pandemic, as the current COVID-19 crisis has shown. Traffic networks exist on multiple scales and the spreading of pathogens exhibits superdiffusive properties. This talk will emphasize and analyze the key role of human mobility for the modeling, forecast, and control of epidemic spreading. A major problem is posed by the limited availability of statistical data on human mobility. Various proxies are now utilized since we suggested dollar bills as proxies for human moblity. Recent work on endemic diseases in populations open to migration will be discussed.