

## **Modelli dinamici su grafo per la mobilità urbana e la diffusione delle epidemie**

### **Research Activity**

The big data approach to complex socio-economic systems requires both the development of data analytic techniques and predictive dynamical models for future scenario. The urban mobility is a paradigmatic problem that is relevant for the life quality in the cities and as a proxy of the social activities. The relation between the social activities and the mobility demand or the formation of congestion in the transport networks are relevant problems for the smart city governance not only to improve everyday life but also to cope with the problem of epidemic spread. The City Science Laboratory of the DIFA department has a consolidated experience in the application of Statistical Mechanics and Dynamical Systems Theory to the modelling problems of human mobility.

### **Dynamic graph models for urban mobility and the spread of epidemics**

#### **Research Project**

The candidate will contribute to the development of nonlinear dynamical models on graph structures for the urban mobility and to study their predictability with respect to future scenario both using analytical and numerical tools. Validation procedure will be performed using big data analytic techniques.

During the research activity the candidate will also collaborate the members of the UNIBO team involved in the PNRR DARE project with the objective of enhancing the potential of data to improve health promotion and to reduce the impact of epidemic spread.