Wednesday 3 October 2018 – at 11:30 am
Seminar Room “-1” – Department of Mathematics

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Reducing measles risk in Turkey through social integration of Syrian refugees

Abstract:
Turkey hosts almost 3.5M refugees and has to face a humanitarian emergency of unprecedented levels. We use Call Detail Records to map the mobility patterns of both Turkish and Syrian refugees, and use these maps to build data-driven computational models for quantifying the risk of epidemics spreading for measles, a disease having a satisfactory immunization coverage in Turkey but not in Syria, due to the recent conflict while accounting for hypothetical policies to integrate the Refugees with the Turkish population. Our results provide quantitative evidence that policies to enhance social integration between refugees and the hosting population might reduce the reproduction number of measles by almost 50%. Moreover, our results suggest that social segregation does not hamper but rather boosts potential outbreaks of measles to a greater extent in Syrian refugees but also in Turkish citizens, although to a lesser extent. This is due to the fact that the high immunization coverage of Turkish citizens can shield Syrian refugees from getting exposed to the infection and this in turn reduces potential sources of infection, in a virtuous cycle reminiscent of herd immunity.

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