

Abstract for an Invited Paper
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Forecasting techno-social systems: how physics and computing help to fight off global pandemics

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The crucial issue when planning for adequate public health interventions to mitigate the spread and impact of epidemics is risk evaluation and forecast. This amounts to the anticipation of where, when and how strong the epidemic will strike. In the last decade advances in performance in computer technology, data acquisition, statistical physics and complex networks theory allow the generation of sophisticated simulations on supercomputer infrastructures to anticipate the spreading pattern of a pandemic. For the first time we are in the position of generating real time forecast of epidemic spreading. I will review the history of the current H1N1 pandemic, the major road-blocks the community has faced in its containment and mitigation and how physics and computing provide predictive tools that help us to battle epidemics.