Contribution submission to the conference BPCPPDYSOE 2021

Scenario projections of the Covid-19 pandemic using a data-driven macroscopic model — •MARTIN TREIBER — TU Dresden, Germany

Modelling the pandemic dynamics is a prime example of an interdisciplinary topic combining biology, the dynamics of social systems, and econometric data analysis. The proposed model is of the delayed SEIR type including delays caused by the infection period and the delayed effect of vaccinations. Moreover, it also includes a complete measurement model including the delay between infection and test, the number of tests, test strategies, the percentage of reported infections, and the test sensitivity and specificity.

The time varying model parameters base reproduction number R_0 and infection fatality rate are calibrated, for different countries, to the reported cases and fatalities of RKI and OWID data. Relating the R_0 values to social behavior (mask usage, distance, different stages of a "lockdown") I estimate the effect of different measures, of the season, and possibly of different virus strains, in terms of changes of R_0.

Using the interactive online tool `traffic-simulation.de`, I present projections for several timelines of social behaviour, vaccination process, and interactions with neighboring countries. As of Jan 28, the projection of the weekly incidence for the time of the Spring Meeting is, ceteris paribus, about 30 confirmed cases/week/100000 persons.

Part:	SOE
Type:	Vortrag;Talk
Topic:	Covid19 pandemics through the lens of physics, and related topics (Focus Session org: Fakhteh Ghanbarnejad and Philipp Hövel)
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