

Dear Editor,

Our submission is a research article on the topic of compartmental epidemic modelling. The classical treatment for diseases with significant incubation times, such as COVID-19, is based on the celebrated SEIR model. The latter however assumes particular features for the incubation and removal times across the population, which are not supported by actual data. We have presented a generalization of the SEIR paradigm that allows to describe epidemics with arbitrary distributions of these times, while staying highly practical for both modelling the evolution and fitting to epidemiological data. The new formulation has allowed us to derive asymptotic solutions in terms of logistic curves, explaining the universality observed in microdynamical simulations with different levels of inhomogeneity. It also allows for simple analytical and numerical treatment.

We believe our proposal is a powerful, practical alternative to standard methods.