

International E-Conference on

# **VIROLOGY, INFECTIOUS DISEASES AND COVID-19**

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**Dr. Tomas Veloz**

Foundation for the Interdisciplinary Development of Science, Technology and Arts(DICTA), Chile.

## **The pandemic impact tensor: towards a calculus of counterfactual mobility restrictions**

**M**easures to reduce the impact of COVID19 require a mix of logistic, political and social capacity. In order to better understand the impact of these measures we developed a meta-populations compartmental model which, on the one hand allows to calibrate the behaviour of people within and the mobility of people among different areas, and on the other hand it incorporates an hospitalization dynamics that differentiates the available kinds of treatment that infected people can receive. We will explain the model, show its computational implementation, elaborate on the parameter optimization problem, and present an analysis of the impact of COVID19 in Chile.

### **Biography:**

Dr. Tomas Veloz is an interdisciplinary researcher with a background in physics, mathematics and computer science. He is currently leading the mathematical modelling team at the COVID19Geomodeler of Project at Ciencia & Vida foundation in Santiago, Chile. The project aims at developing a tool to forecast the evolution of COVID19 combining geo-spatial, behavioral, and epidemiological information in a meta-populations differential-equations-based compartmental model. He has published more than 50 research articles of diverse levels of technicality and in several areas including cognitive science, ecology, epidemiology, among others. He has developed international collaborations not only in science (researching for collaborative grants, organizing conferences, editing books and magazines, etc.), but also as an entrepreneur in renewable energies, and as a musician. He is also the director of the Foundation for the Interdisciplinary Development of Science, Technology and Arts (Santiago, Chile), the head of mathematical modeling at the Centre Leo Apostel, VUB, (Brussels, Belgium), and scientific advisor of the General Comptroller in Chile.