



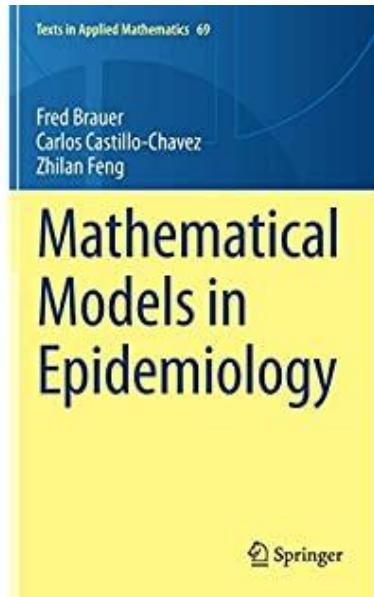
# Leccións aprendidas e Perspectivas na crise da COVID-19

## A dinámica do contaxio en Galicia

Juan José Nieto Roig

21 de abril de 2020



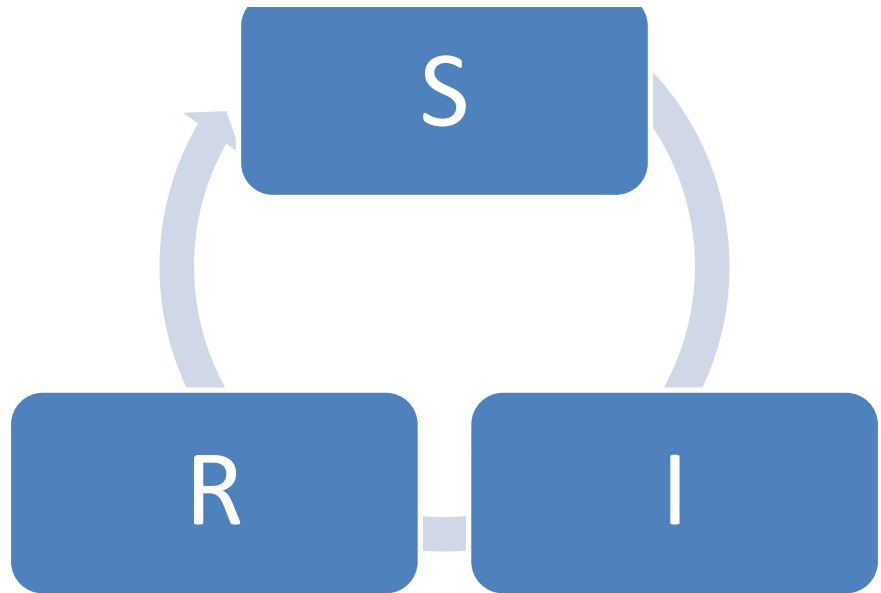
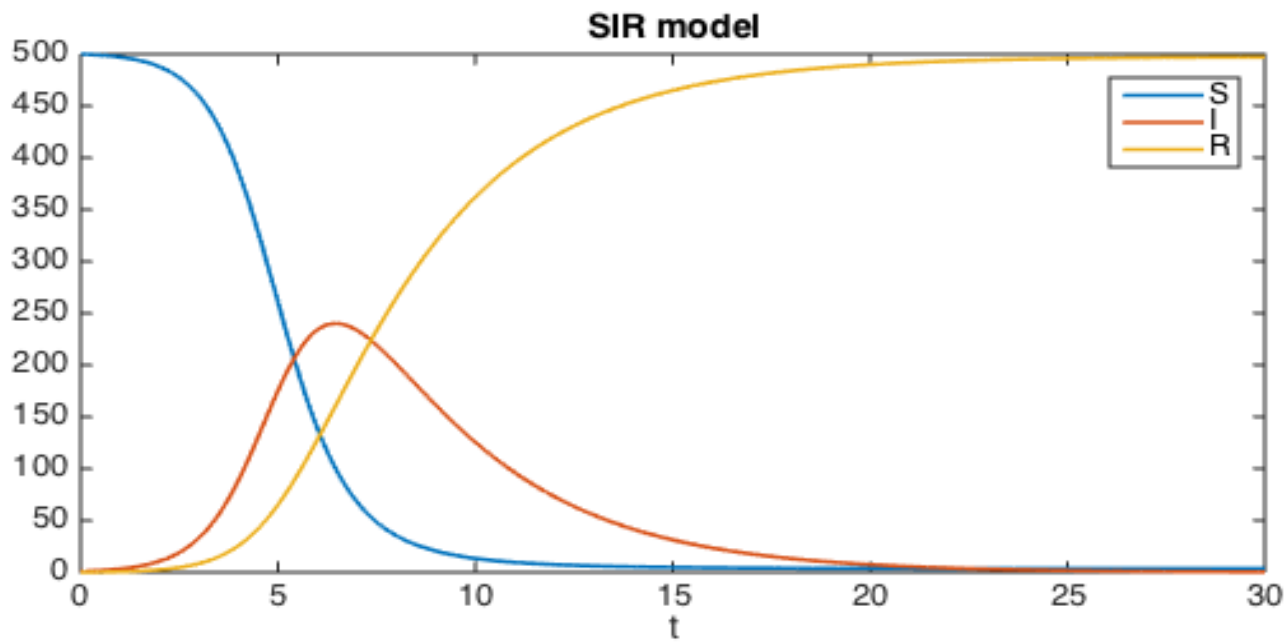


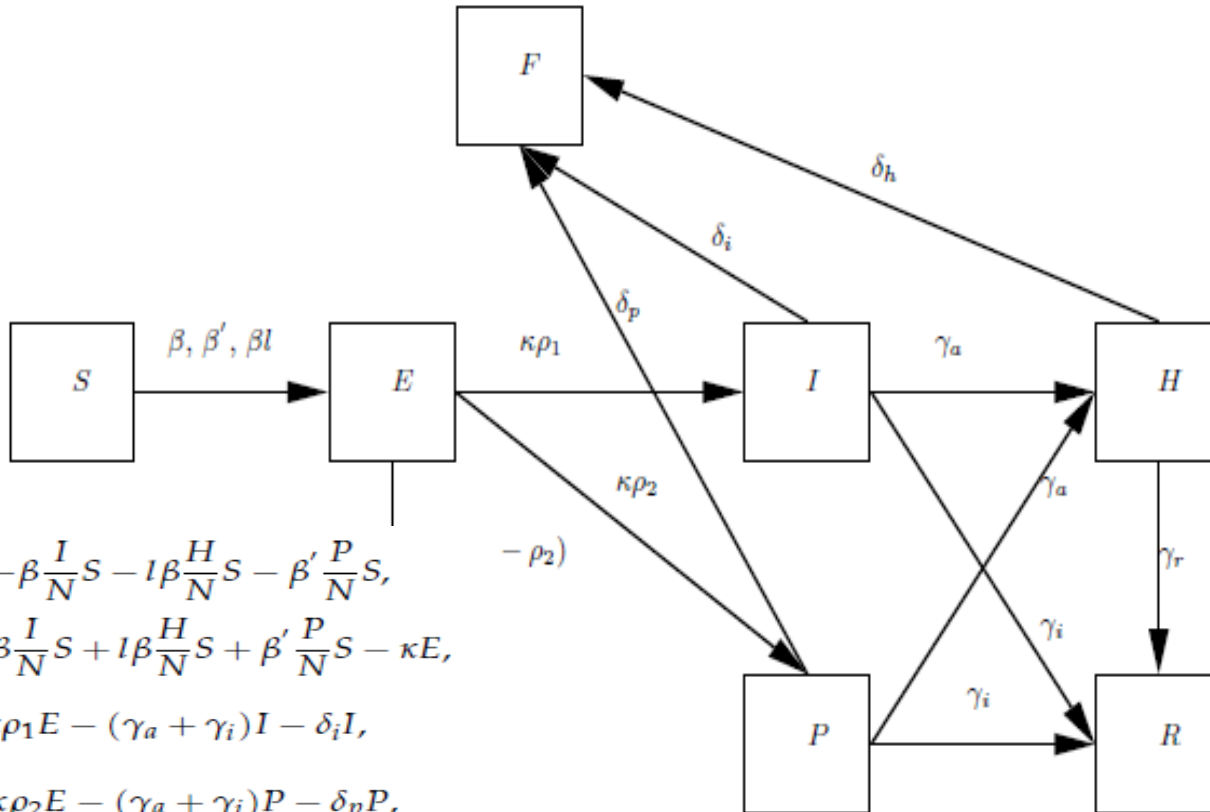
# MODELOS MATÉMATICOS DE LAS EPIDEMIAS

UNIDAD DIDÁCTICA  
MATEMÁTICAS  
DEL PLANETA TIERRA

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*Juan José Nieto Roig*

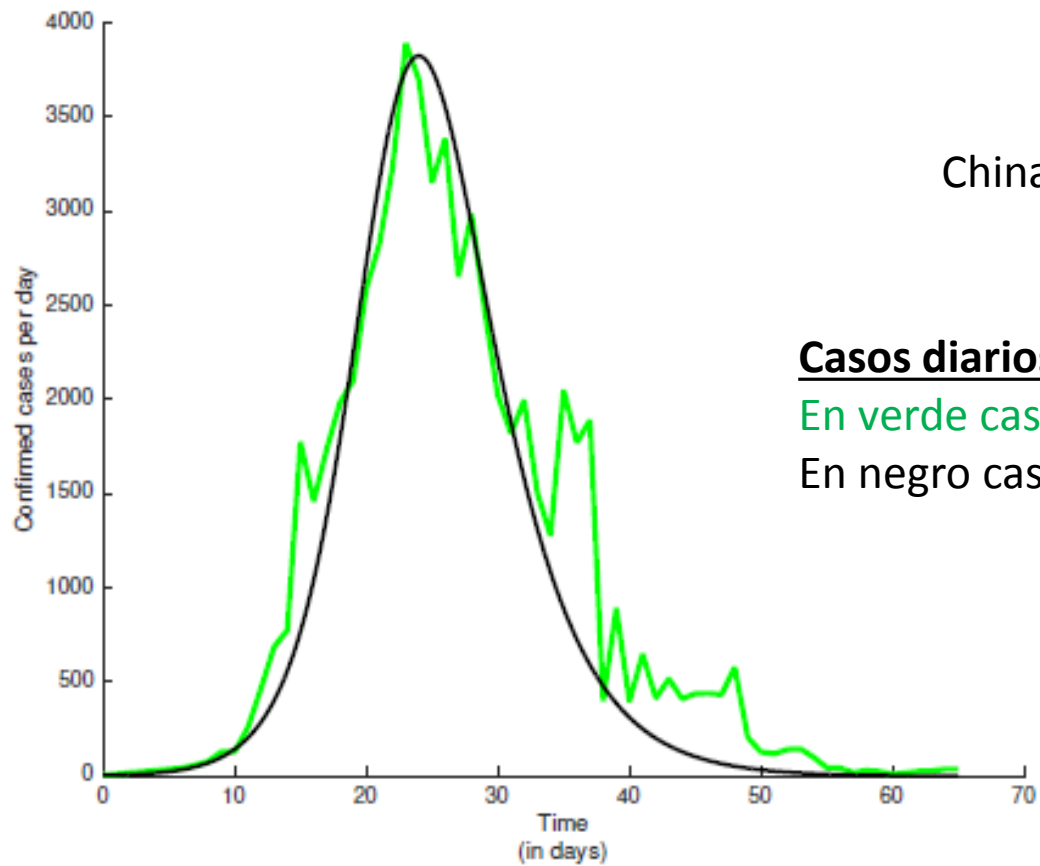




Parameter	Sensitivity index
$\beta$	0.963
$l$	0.631
$\beta'$	0.366
$\kappa$	0000
$\rho_1$	0.941
$\rho_2$	0.059
$\gamma_a$	0.418
$\gamma_i$	-0.061
$\gamma_r$	-0.395
$\delta_i$	-0.699
$\delta_p$	-0.027
$\delta_h$	-0.238

$$\left\{ \begin{aligned} \frac{dS}{dt} &= -\beta \frac{I}{N} S - l \beta \frac{H}{N} S - \beta' \frac{P}{N} S, \\ \frac{dE}{dt} &= \beta \frac{I}{N} S + l \beta \frac{H}{N} S + \beta' \frac{P}{N} S - \kappa E, \\ \frac{dI}{dt} &= \kappa \rho_1 E - (\gamma_a + \gamma_i) I - \delta_i I, \\ \frac{dP}{dt} &= \kappa \rho_2 E - (\gamma_a + \gamma_i) P - \delta_p P, \\ \frac{dA}{dt} &= \kappa (1 - \rho_1 - \rho_2) E, \\ \frac{dH}{dt} &= \gamma_a (I + P) - \gamma_r H - \delta_h H, \\ \frac{dR}{dt} &= \gamma_i (I + P) + \gamma_r H, \\ \frac{dF}{dt} &= \delta_i I(t) + \delta_p P(t) + \delta_h H(t), \end{aligned} \right.$$

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 1.- Center for Research and Development in Mathematics and Applications, Aveiro, Portugal; 2.- E. E. Aeronáutica e do Espaço, Ourense, Universidade de Vigo; 3.- IMAT, Universidade de Santiago de Compostela  
**Mathematical Modeling of COVID-19 Transmission Dynamics with a Case Study of Wuhan. Chaos, Solitons & Fractals, 2020.**

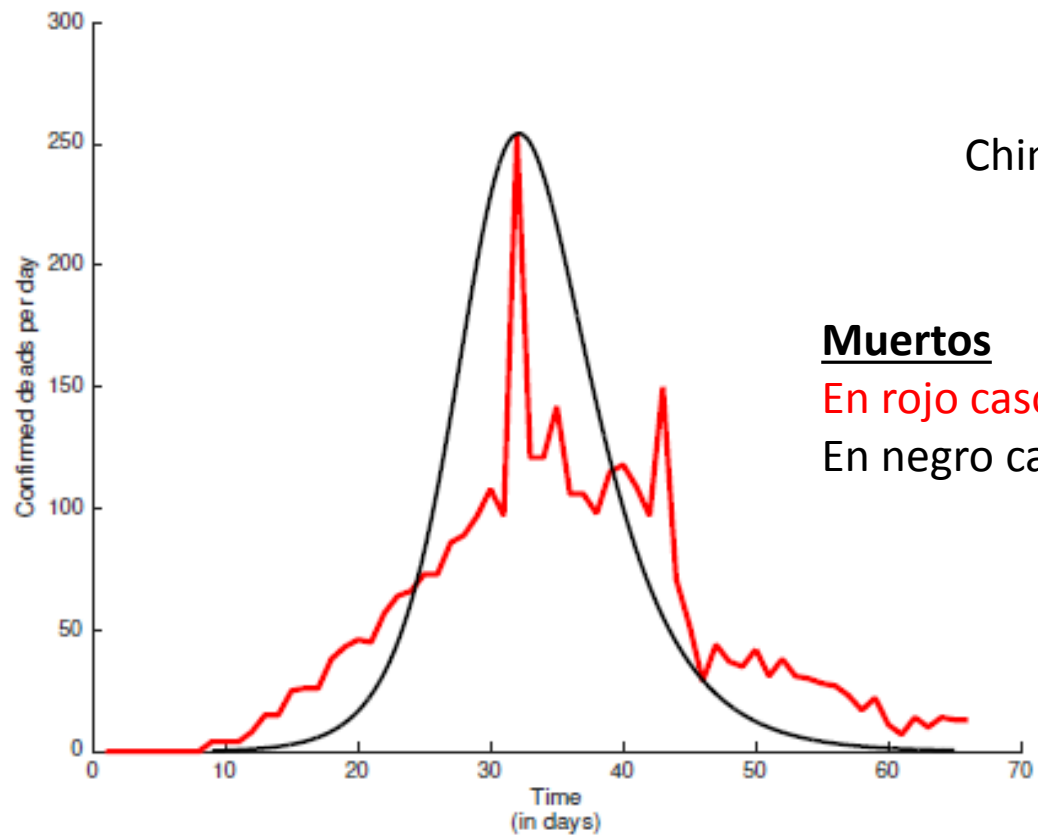


China

**Casos diarios**

En verde casos reales

En negro casos del modelo

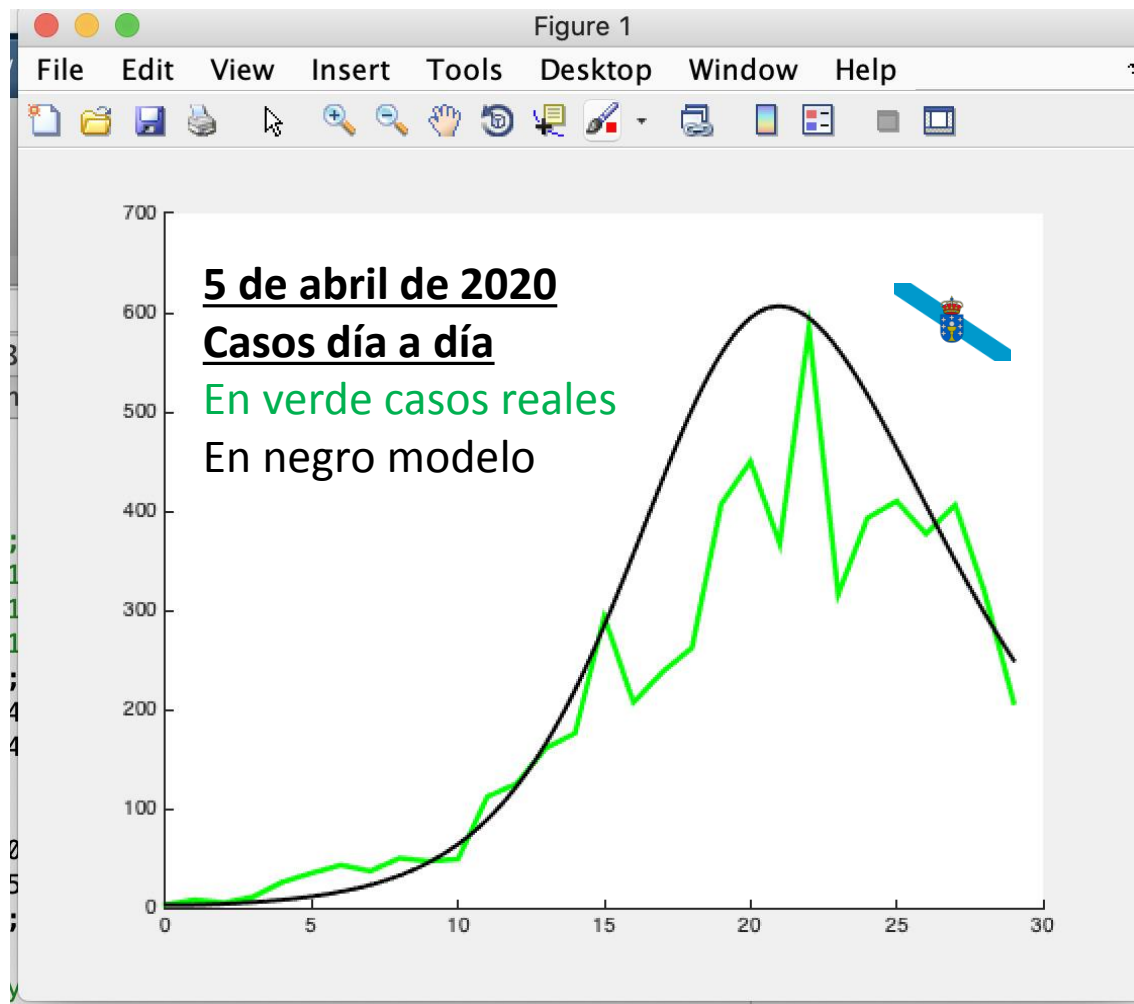


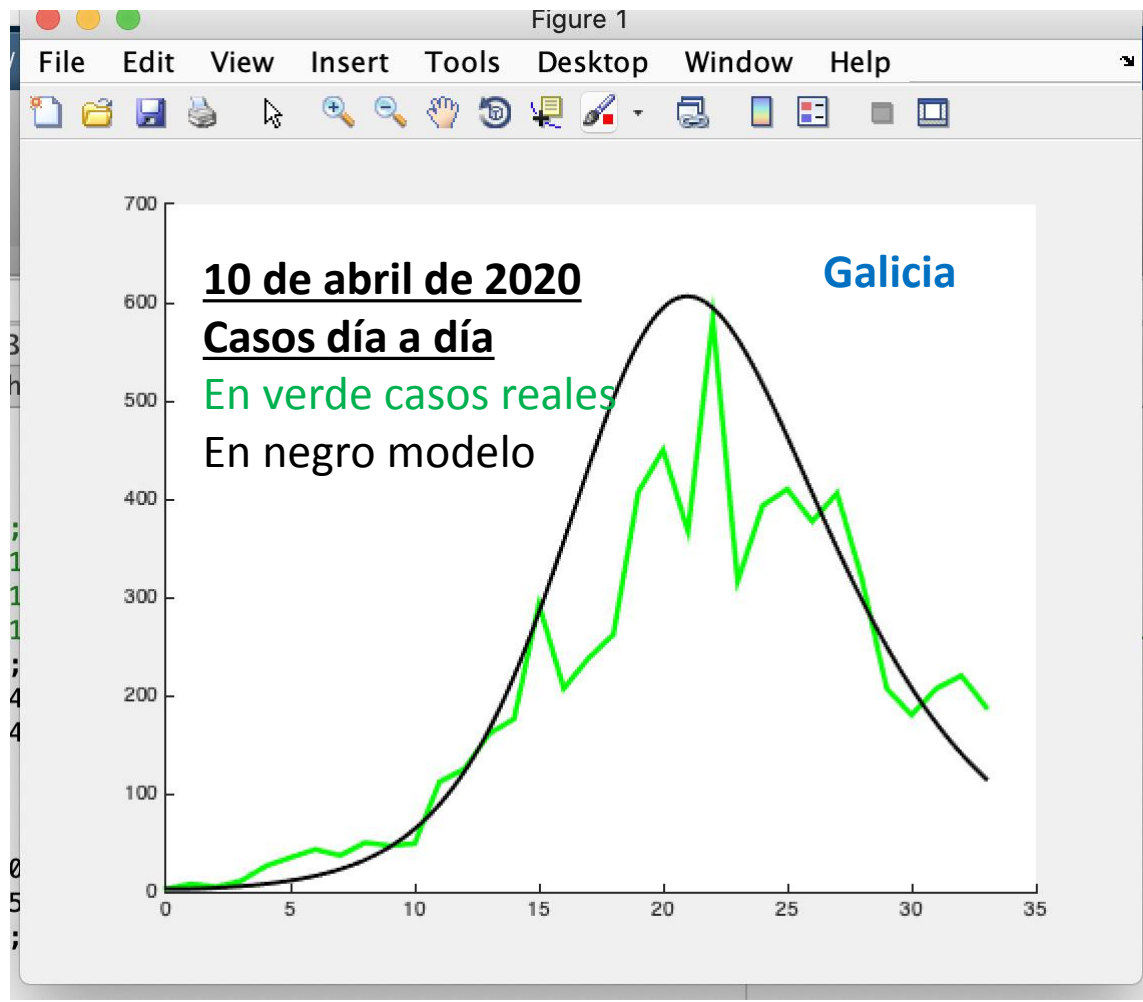
China

**Muertos**

En rojo casos reales

En negro casos del modelo



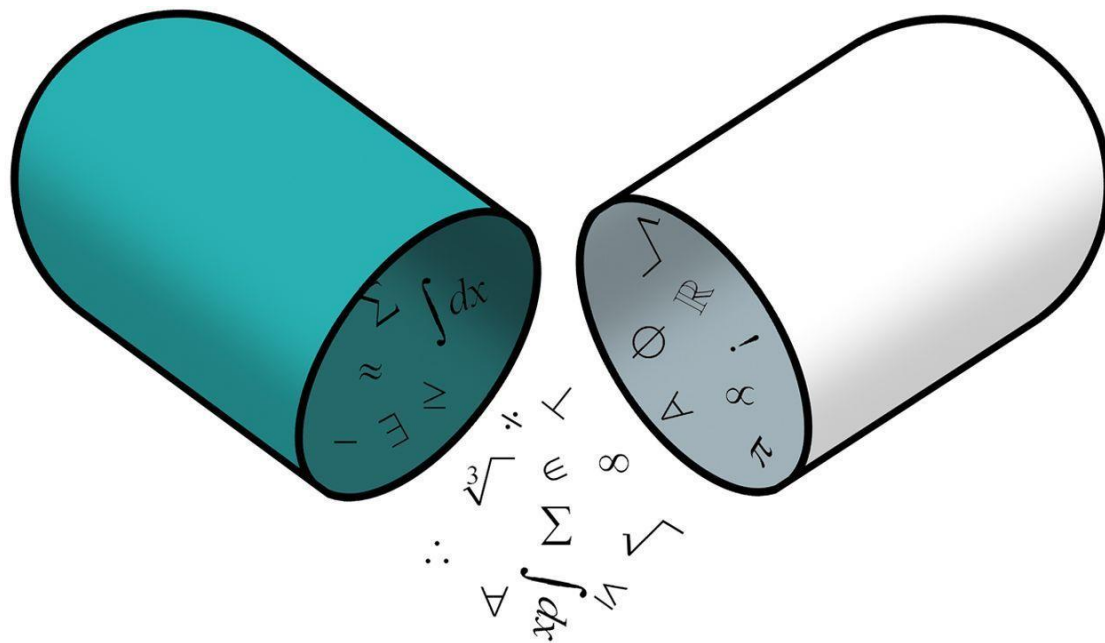




¿Futuro?

**The Absolute Need of Integrated  
Science to Fight COVID-19  
Pandemic and Beyond**

N. Moradian, Michael R. Hamblin, Carlos A.  
Camargo, JJN, Shuji Ogino, John F. Seymour  
USERN & Harvard Medical School, Boston, USA



La Voz de Galicia, CoronaMatemáticas, 2 de abril de 2020

[https://www.lavozdeg Galicia.es/noticia/opinion/2020/04/02/span-langglcoronamatematicasspan/0003\\_202004E2P48991.htm#](https://www.lavozdeg Galicia.es/noticia/opinion/2020/04/02/span-langglcoronamatematicasspan/0003_202004E2P48991.htm#)

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