

## PLENARY SPEAKER: RESPONDING TO THE COVID PANDEMIC – EXPERIENCES FROM THE FRONT LINES

THURSDAY: AM PLENARY

### PLENARY SPEAKER

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DR. CHARLES “CHICK” MACAL, DECISION AND INFRASTRUCTURE SCIENCES DIVISION, ARGONNE NATIONAL LABORATORY

Dr. Chick Macal leads the Social and Behavioral Systems Group in Argonne National Laboratory’s Decision and Infrastructure Sciences (DIS) Division. He is also an Argonne Distinguished Fellow and the Chief Scientist in DIS. He applies computational modeling and simulation tools to complex systems to solve problems in a variety of fields, including energy and national security. Dr. Macal is also a Senior Fellow with the University of Chicago’s Consortium for Advanced Science and Engineering and the Northwestern University

Northwestern-Argonne Institute for Science and Engineering.

### SESSION ABSTRACT

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In the span of less than a year, the COVID-19 pandemic has killed more than 40 times the number of Americans killed by all of the natural disasters between 2010 and 2019 – without causing any physical damage to the nation’s critical infrastructure. Responding to the dynamic nature of the pandemic required a new emergency management “playbook” and tools. Dr. Charles Macal led a team of researchers in Argonne’s Decision and Infrastructure Sciences Division that developed a series of tools to support decision makers at the city, county, state, and national levels. One of the tools used was an agent-based disease transmission model that could model the potential movements and actions of every person in the City of Chicago and its surrounding counties. This model was used to study the impacts of different social distancing strategies and the impacts from singular events, such as the protests that swept the nation and holiday events in which large numbers of people celebrated in spite of the warnings to not meet in large groups. In this presentation, Dr. Macal will summarize the results from the modeling efforts done at Argonne and how they were used by public health officials at the city, county, and state levels in Illinois. He will also provide some thoughts on how planners can better prepare for the next “black swan” event.