

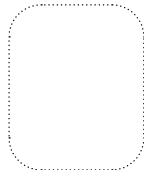
The UK's National Supercomputing Service

Expiratory particle dispersion by turbulent exhalation jet during speaking

The image reveals the extent of expiratory particle dispersion by the turbulent exhalation jet during speaking, with this high-resolution simulation run on the ARCHER2 system. A 3D overview figure of the whole room is shown in the bottom right-hand corner for spatial context. The particle's ability to stay airborne is affected by its diameter: the largest particles (red and yellow) fall out close to the speaking person, while the smaller ones (blue) are entrained into the exhalation jet and transported throughout the room. The aim of the research is to develop a numerical tool to predict accurately the spread of airborne pathogens carried by very small expiratory particles in different indoor environments. The novelty of this work lies in the ability to determine and quantify the spatiotemporal distribution of airborne pathogens and the infection risk in different indoor scenarios, considering the turbulent mixing of particles on their spread.

Aleksandra Monka, University of Birmingham, Department of Civil Engineering

Winning Image and overall competition winning entry 2022



www.archer2.ac.uk