

IIT BBS study confirms a social distancing of 6ft to prevent Covid-19 transmission

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BHUBANESWAR: An IIT Bhubaneswar study confirmed and also recommended that a social distancing of six feet from all orientations can prevent transmission of Covid-19.

Venugopal Arumuru, assistant professor, school of mechanical science (SMS), and his team at IIT Bhubaneswar has conducted this study on the efficacy of various non-standard and standard face masks under the act of sneezing.

The study highlighted that the protective measures like face mask and face shield effectively reduce the leakage and reach of the sneeze within 1ft to 3ft. However, they do not completely stop the leakage of smaller droplets. Hence, social distancing is equally important.

The study recommended using the elbow or hand to prevent droplets leakage even after wearing a mask during coughing and sneezing. The study confirmed that without protectives measures like a face mask, the smaller droplets expelled during a sneeze can travel up to 25ft in 22 second in a stagnant environment.

During this Covid-19 situation, this study will improve the understanding of smaller droplets/particles' dynamics in turbulent flows, which causes transmission of the virus. "These visualization results will bring awareness to wear a mask and maintain social distancing for the general public," said the study.

IIT Bhubaneswar director RV Rajakumar while congratulating the team said the importance of social distancing is clearly evident from this study. "These results will not only spread awareness but will motivate researchers to bring innovation to face mask design," he added.

The peer-reviewed article has been selected as a featured article in Physics of Fluids Journal by the American Physical Society.

Arumuru said their flow visualization study shows how smaller particles escape from the various face mask and how far they travel during sneezing. The importance of social distancing is visually evident from this study, which will educate the general public on the importance of the face mask and social distancing to prevent transmission of Covid-19, he added.

“Our proposed simple experimental setup can be used to test new face mask designs. The sneeze is simulated at the exit of the nose of a standard mannequin, using air and tracer particles,” said Arumuru.

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