Durgesh Sinha

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BIOGRAPHY

Durgesh Sinha did her PhD in Applied Mathematics, MSc in Mathematics, and BSc in Mathematics honors in 2000, 1996 and 1994 respectively from Vinoba Bhave University, India. Apart from this she did MSc from Civil and Environmental Engineering Department, Temple University, Philadelphia, USA in 2008 to enhance skill on applied sciences. She started teaching at Temple University since 2008, Rowan College at Burlington County in 2009, Strayer University in 2010, Community College of Philadelphia in 2014 and Mercer County Community College in 2014 till now as an Adjunct Assistant professor. Meanwhile she involved in research of Computer virus and infectious diseases modeling and she published three papers in reputed Journals like *Nature, and Journal of Immunological Techniques & Infectious Diseases* in 2016 to 2018. Her current research goal is in Epidemics and cyber-crime.

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MATHEMATICAL MODELING OF ZIKA VIRUSES WITH VERTICAL TRANSMISSION

This research investigates an infectious disease caused by an RNA virus called Zika, both in mosquitoes and humans. The Zika arbovirus transmitted by the Aedes aegypti mosquitoes has been shown to be capable of infecting humans via two routes: the bites of infected vectors and through sexual contacts involving infected and non-infected persons. Zika virus can cause influenza in effected humans and several diseases in infants of infected pregnant women. Author has formulated a mathematical model SEIPRRbRib for human population and SEI for vector population to see effect of Zika virus on the human, pregnant women, zika infected newborn baby from infected pregnant women and mosquito population. They computed the basic reproduction number for both human and mosquito population. They have used data of real cases in the United States. Author's aim is to show the rate of transmission and consequences in new born infants with brain disorder and to help taking precautions against this disease.