MONDAY

# COLLOQUIUM

## Biophysical Evolution of Coronavirus Spike Proteins

Krishna Mallela (CU Anschutz, CO)

22 Dec 2025 (Monday) | 16:00 Hrs (Tea / Coffee 15:45 Hrs) | Venue: TIFRH Auditorium

The emergence of COVID-19 has crippled the world in many ways and exposed our lack of preparedness to handle pandemics. The number of currently infected patients remain high, in the tens of millions, worldwide. The spike protein forms the corona of SARS-CoV-2 and is the most mutated protein in coronaviruses (CoVs). It is also the primary point of contact between CoVs and humans. During my talk, I will discuss the physical mechanisms underlying the emergence of new variants and the natural selection of mutations, focusing on receptor binding, immune escape, and long-range allosteric effects. I will also discuss the molecular signatures that bat CoVs need to acquire to become human CoVs through zoonotic transfer via intermediate hosts.

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