



# Satyendra Nath Bose National Centre for Basic Sciences



Visitor, Associates and Students' Programme (VASP) presents Webinar Series on  
**Quantum Materials & Devices**



03 NOV 2021

07:00 PM (IST)



Link



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## TITLE

The enigmatic deconfined quantum critical point

## ABSTRACT

The deconfined critical point has been proposed to describe "beyond Landau" quantum phase transitions between different ordered ground states of 2D quantum antiferromagnets, specifically between the conventional Neel state and a non-magnetic state with a spatial pattern of singlets. Despite years of efforts by many groups on computational model studies, the nature of this phase transition is still puzzling. Moreover, a host of related phenomena that were not part of the original proposal have been discovered along the way, e.g., emergent symmetries, unusual weak first-order transitions, helical dimer order, and possibly spin liquid phases terminating at deconfined critical points. I will summarize the current status of the deconfined critical point emerging from large-scale computer simulations. I will also discuss recent experiments on quasi-2D frustrated quantum magnets that show promise to realize the deconfined critical point and many of its associated unusual quantum effects.

## SPEAKER

**Professor Anders W. Sandvik, Boston University**

Professor Anders W. Sandvik is one of the most celebrated condensed matter theorist at Department of Physics, Boston University USA. He has major contributions in the field of correlated quantum many body theory. His famous contribution is development of Stochastic Series Expansion (SSE) quantum Monte Carlo. The SSE is one of most widely used numerical method for correlated many body quantum spin systems. He has recieved many prestigious award other than Per Brahe Science Prize in 2001. He is fellow of the American Physical Society and Simons Fellow in Theoretical Physics.



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