



15<sup>TH</sup> FEBRUARY 2021 | 08:00 PM

# 15<sup>th</sup> C. K. MAJUMDAR MEMORIAL LECTURE

( ONLINE WEBINAR )

by

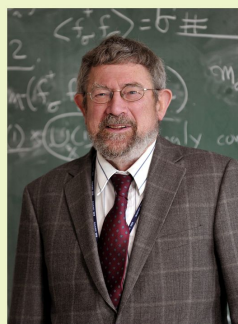
**Prof. John Michael Kosterlitz**  
Department of Physics, Brown University  
2016 Nobel Laureate in Physics

| Title of the Talk |  
**Topological Defects and Phase Transitions**

| Abstract |

This talk reviews some of the applications of topology and topological defects in phase transitions in two-dimensional systems for which Kosterlitz and Thouless split half the 2016 Physics Nobel Prize. The theoretical predictions and experimental verification in two dimensional superfluids, superconductors and crystals will be reviewed because they provide very convincing quantitative agreement with topological defect theories.

| About the Speaker |



J. Michael Kosterlitz is a theoretical physicist recognized for his work with David J. Thouless on the application of topological ideas to the theory of phase transitions in two-dimensional systems with a continuous symmetry. The theory has been applied to thin films of superfluid  $^4\text{He}$ , superconductors and to melting of two-dimensional solids. Experiments on two dimensional layers of colloidal crystals agree with theoretical predictions in quantitative detail. This work was recognized by the Lars Onsager prize in 2000, membership in the AAAS 2007, by the 2016 Nobel Prize for physics and elected to the NAS in 2017. He graduated from

Cambridge University earning a BSc in physics in 1965, an MA in 1966 and received a D. Phil. from Oxford in 1969. He was a postdoctoral fellow at Torino University, Italy, in 1970 and at Birmingham University, U.K., from 1970-73. There he met David Thouless and together they did their groundbreaking work on phase transitions mediated by topological defects in two dimensions. He was a postdoctoral fellow at Cornell in 1974, on the faculty at Birmingham 1974-81 and Professor of Physics at Brown University 1982 - present.

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