

# J. MICHAEL KOSTERLITZ

2016 Nobel Prize Laureate

Harrison E. Farnsworth Professor of Physics, Brown University



## 2018 Vaden W. Miles Memorial Lecture



Thursday, April 19, 2018

Spencer M. Partrich Law School Auditorium

471 W. Palmer Street

Wayne State University

*Refreshments served at 2:30pm*

*Awards event at 3:00pm*

*Lecture starting at 3:45pm*

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### *Topological Defects and Phase Transitions - A Random Walk to the Nobel Prize*

This talk is about my path to the Nobel Prize and 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.

**BIOSKETCH:** Dr. 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. This work was recognized by the Lars Onsager prize in 2000, membership in the AAAS 2007, and by the 2016 Nobel Prize in Physics. Dr. Kosterlitz 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, Professor of Physics at Brown University 1982-present, and elected to the National Academy of Sciences in 2017.

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