

**PHYSICS & ASTRONOMY COLLOQUIUM  
UNIVERSITY OF WISCONSIN – STEVENS POINT**

**FRIDAY, MAY 11, 2012  
2:00 PM Room A106 SCI**

**Alexander Popov**

**Nanoscience and Left-handed Metamaterials:  
Extraordinary Electromagnetics, Unparallel Nonlinear  
Optics, Unique Photonic Microdevices (Basic Ideas)**



Alexander Popov is a Research Professor of Physics. He received his PhD degree from Siberian Division of the Russian Academy of Sciences. He founded and headed the Department of Coherent and Quantum Optics at Krasnoyarsk Institute of Physics (East Siberia) of SD of RAS. He is author/co-author of four books and more than 400 research papers published in leading topical physical journals. For more details, see <http://www.uwsp.edu/physastr/apopov>.

**ABSTRACT:** A novel class of exotic, man-made, nanotechnology-based electromagnetic materials (metamaterials) has emerged recently, which opens new avenues in optics. It is because energy flow and phase velocity of travelling electromagnetic waves are counter-directed in such left-handed, negative refraction index, plasmonic metamaterials. Such extraordinary behavior never occurs in natural materials and, therefore, holds promise of a revolutionary breakthrough in photonics, optical nanoengineering and for a family of unparalleled exciting applications.

The purpose of this talk is to introduce basic principles of the outlined research fields and applications as well as the related research project in the Department of Physics and Astronomy at UWSP funded by the National Science Foundation. Students are invited to participate in this research. Financial support for this research is available to students.

*Faculty, staff and students are cordially invited to attend.  
Refreshments will be served beginning at 1:45 pm*