



**Department of
Polymer Engineering
University of Akron, OH
330-972-5138**

leonov@uakron.edu

www.uakron.edu/cpspe/faculty-research/profile.dot?id=cc9458cd-4721-4695-b117-46552a3ccec9

Biography:

- 1969 Ph. D., Mathematical Physics, Karpov's Physical Chemistry Research Institute, Moscow
- 1962 Ph. D., Theoretical Mechanics, Institute of Problems in Mechanics, USSR Academy of Sciences, Moscow
- 1961 M.C., Mathematics, Moscow State University
- 1957 M.S., Chemical Engineering, Moscow Institute of Chemical Engineering

Awards and Honors:

- Honorary Member of British Society of Rheology
- Vinogradov's Society of Rheology Award, 2001
- Invited work in Paris-7 University and Michelin Co on physics of filled rubbers in May-June 2011

Research Interests:

Classic and polymer related continuum mechanics of solids and liquids (including geophysical fluid mechanics), polymer rheology and fluid mechanics, polymer physics and physico-chemistry, polymer processing, mathematical sociology.

Industrial Sector Focus:

Chemo-rheology and chemo-processing of gum and filled rubbers

Recent Publications/Patents in Polymeric Area :

1. Leonov, A.I., Constitutive Equations for Viscoelastic Liquids: Formulation, Analysis and Comparison with Data, in: ADVANCES IN THE FLOW AND RHEOLOGY OF NON-NEWTONIAN FLUIDS, D.A. Siginer, D. De Kee and R.P. Chhabra Eds., Elsevier, New York, 519-576, 1999
2. Leonov A.I., A Model of Weak Viscoelastic Nematodynamics, Zeitschr. Angew. Math. Phys.(ZAMP), 59, 333-359, 2008
3. Honhgyan C. and Leonov A.I., Liquid Crystalline Polymers: Theories, Experiments and Nematodynamic Simulations of Shearing Flows in: *MODELING AND SIMULATIONS IN POLYMERS*, P. Gujrati and A.I. Leonov Eds., Wiley & Sons, Ch. 11, pp. 497-525, 2010
4. Ding, R. and Leonov, A.I., An Approach to Chemorheology of a Filled SBR Compound, Rubber Chem. & Technol., 72/2, 361-383, 1999
5. Mitra A. and Leonov A.I., On Rheology, Cure Kinetics and Chemorheology of Gum Rubbers, J. Visokomolekularnye Soedinenia (Rus. "Polymer Science"), Russ. Polym. Sci., A 52, 1-10, 2010
6. Melnikov A.Y. and Leonov A.I., Damage of Cross-Linked Rubbers as the Scission of Polymer Chains: Modeling and Tensile Experiments, J. Polym. Eng. Sci. 52, 2206-2216, 2012
7. Zhang, W., and Leonov, A.I., IGC Studies of Filler-Filler and Filler-Rubber Interactions in Silica Filled Compounds, J. Appl. Polym. Sci., 81, 2517-2530, 2001
8. Jeong, J., Moon, C. W., Leonov, A.I., and Quirk, R. P., Cure Kinetics for Silane Coupled Silica Filled SBR Compounds, Rubber Chem. & Technol., 75, 93-109, 2002

He published over 240 papers, 4 monographs, 4 book chapters and 3 patents.