

Name: Klavdiya Oleshko

Affiliation: UNAM (Universidad Nacional Autónoma de México)

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Biography:

Specialty: Physics of Porous Media (Soils), Electromagnetism. I have graduated from Moscow State University (Lomonosov), URSS. Theses: "Influence of the magnetic field on the microstructure of clay soils" (BS and M. D., 1977), and "Influence of the electromagnetic field on the microstructure of soil" (PhD,1982). The visualization of this research is on the site: https://www.net-film.ru/film-41154.

With more than 42 years of experience in Mexico, 30 are at the National Autonomous University of Mexico. Founder of LAFSINA: Laboratory for the Fractal Analysis of Natural Systems, at the Institute of Geology, currently at the Institute of Geosciences, UNAM, Juriquilla. Coordinator of more than 20 national and international research projects. Including: "Naturally Fractured Oil Reservoir as the Fractal Reactor." The principal product of this latter International, multidisciplinary research project is the bio-inspired Software MIK: Muuk'il Kaab ("The Bees Constructing their Honeycomb," in the Maya language). MIK was calibrated in several strategic oil fields of PEMEX, Mexico, and is currently being used by the industry in collaboration with UNAM.

The Member of the National System of Researchers Level III (until 2035). Author and co-author of over 100 articles and 12 book chapters, with 1300 citations. Director of 32 theses: 29 of master's degree and PhD. Advisor of 16 theses. Member of the International Group of Nolineal (NP) and Multifractal (MF) processes. Current scientific research topics are (1). Unification of machine learning, deep learning, and big data-driven analyses and modeling in Geosciences through the fusion of Number Theory and physics-informed visualization; (2). To design libraries for machine learning based on the data banks recollected in Mexico during more than forty years

of field experiments considering the urgent necessity to develop the Theory of Ecocide and Agro-Ecocides of natural complex systems; (3). To participate in the democratization of Geosciences through public engagement in applying Cyberphysical tools and the Lab-on-a-Chip approach; (4). Formalize the long-time acquired knowledge about cloud dynamics in Chile and Mexico in "New Classification of Clods, valid for climate and environmental projects to find proper solutions.

Keywords for future research: sustainability of management and nonlinear dynamics of complex systems; big geo data analytics; ultrametricity; number theory; and computation with p-Adic numbers.