



UNIVERSIDADE DO ESTADO DO RIO DE JANEIRO - UERJ  
PROGRAMA DE PÓS-GRADUAÇÃO EM ENGENHARIA ELETRÔNICA - PEL

## AULAS INAUGURAIS 2018-2



**PALESTRANTE:** Prof. Emilia Fridman (Tel Aviv University)

**TÍTULO:** “A Time-Delay Approach to Sample Data and Network-based Control”

**LOCAL E HORÁRIO:** Auditório 11 (primeiro andar), dia 27/08/2018 (segunda-feira) às 09:30h

**RESUMO:** A classical approach to sampled-data control is based on discretization that loses information on the inter-sampling behavior and performance. To avoid the latter problem, a time-delay approach to sampled-data control was introduced, where the system was modeled as a continuous-time system with the delayed input/output. The time-delay approach became popular in networked control systems, where the plant and the controller exchange data via communication network. In the present talk delay effects on stability, positivity and control will be discussed. A time-delay approach to networked-control systems will be presented, where variable sampling intervals, communication delays and protocol scheduling are taken into account. Decentralized networked control of large-scale systems in the presence of local networks and sampled-data control of parabolic PDEs will be mentioned.

**BIOGRAFIA:** Emilia Fridman received the M.Sc. degree from Kuibyshev State University, USSR, in 1981 and the Ph.D. degree from Voronezh State University, USSR, in 1986, all in mathematics. From 1986 to 1992 she was an Assistant and Associate Professor in the Department of Mathematics at Kuibyshev Institute of Railway Engineers, USSR. Since 1993 she has been at Tel Aviv University, where she is currently Professor of Electrical Engineering-Systems. She has held visiting positions at the Weierstrass Institute for Applied Analysis and Stochastics in Berlin (Germany), INRIA in Rocquencourt (France), Ecole Centrale de Lille (France), Valenciennes University (France), Leicester University (UK), Kent University (UK), CINVESTAV (Mexico), Zhejiang University (China), St. Petersburg IPM (Russia), Melbourne University (Australia), Supelec (France), KTH (Sweden). Her research interests include time-delay systems, networked control systems, distributed parameter systems, robust control, singular perturbations and nonlinear control. She has published more than 150 articles in international scientific journals. She is the author of the monograph *Introduction to Time-Delay Systems: Analysis and Control* (Birkhauser, 2014). In 2014 she was Nominated as a Highly Cited Researcher by Thomson ISI. She serves/served as Associate Editor in *Automatica*, *SIAM Journal on Control and Optimization* and *IMA Journal of Mathematical Control and Information*. She is currently a member of the Council of the IFAC.



**PALESTRANTE:** Prof. Eugenii Shustin (Tel Aviv University)

**TÍTULO:** “Real vs. Tropical Enumerative Geometry”

**LOCAL E HORÁRIO:** Auditório 11 (primeiro andar), dia 27/08/2018 (segunda-feira) às 11:00h

**RESUMO:** Typical problems of real enumerative geometry are either an invariant count of real (algebraic) objects in a set of complex ones, or an estimation of the number of real objects among the complex ones. Starting with the celebrated Mikhalkin correspondence theorem, tropical geometry has become an ultimate tool for solving problems of real enumerative geometry and led to a spectacular progress in several important directions. We illustrate this in examples of computation of Welschinger (aka open Gromov-Witten) invariants of toric surfaces and of counting real (multi)singular hypersurfaces in general linear families.

**BIOGRAFIA:** Eugenii Shustin received the M.Sc. degree from Gorky State University, USSR, in 1979 and the Ph.D. degree from Leningrad State University, USSR, in 1984, all in mathematics. In 1979–1981 and 1984–1984 he was an Assistant Professor in the Department of Mathematics at Gorky Institute of Civil Engineers, USSR, in 1987–1992 he was an Assistant and Associate Professor in the Department of Mathematics at Kuibyshev State University. He was the invited lecturer at the International Congress of Mathematicians (ICM) in 1990, Kyoto. He is also the recipient of The Friedrich Wilhelm Bessel Research Award in 2002 from the Alexander von Humboldt Stiftung/Foundation. Since 1992 he has been at Tel Aviv University, currently as a position of Full Professor of School of Mathematical Sciences. His research interests include time-delay systems as well as real, complex, and tropical geometry. He has published a monograph and over 80 articles in international scientific journals.