

Program of UPoN 2018 conference

Conference venue: the Main Building of Gdańsk University of Technology

Breakfasts for participants staying in Student Dorms will be served in the IMP PAN building (3 Smaki, see map) on the way between the Student Dorm and the Main Building

July 9, Monday

- 16:30 – 18:00 Registration (Hall in a front of the main library)
18:00 – 20:00 Welcome reception (J. Hevelius' Courtyard: beer & wine & cakes)

July 10, Tuesday

- 08:00 – 08:50 Breakfast (3 Smaki, see map)
09:00 – 09:15 Welcome of delegates to UPoN 2018 (Main Hall – Aula)
09:15 – 11:05 **Plenary session**, (Main Hall – Aula, Session Chair: J. Smulko)
09:15 – 09:45 L. B. Kish – Is there thermal noise in thermal equilibrium at zero temperature? (*opening talk*)
09:45 – 10:25 S. M. Bezrukov – Unsolved problems in ion channel dynamics (*keynote talk*)
10:25 – 11:05 P. Hakonen – Quantum vacuum, noise, and entanglement (*keynote talk*)
- 11:05 – 11:30 Coffee break
11:30 – 13:00 Parallel Sessions
Session I *Fluctuations in biological systems*, (Main Hall – Aula, Session Chair: S. Bezrukov)
11:30 – 12:00 I. Goychuk – Molecular motors operating in a highly dissipative, noisy and subdiffusive interior of living cells: How a highly efficient operation is possible, lessons from the fluctuation-dissipation theorem (*invited talk*)
12:00 – 12:20 G. Gonnella, F. Cagnetta, F. Corberi, A. Suma – Large fluctuations and dynamic phase transition in active Brownian particle systems
12:20 – 12:40 M. Lechelon, M. Gori, M. Pettini, Y. Meriguet, J. Torres, L. Varani – Can noise and diffusion help to solve the puzzle of biomolecules interactions?
12:40 – 13:00 D. Makowiec, D. Wejer, B. Graff, Z. R. Struzik – Multiscale approach in discovering cardiovascular couplings from cardiovascular time series
- Session II** *Fluctuations in materials and devices*, (Room 264, Session Chair: P. Hakonen)
11:30 – 12:00 G. Jung – Macroscopic random telegraph noise (*invited talk*)
12:00 – 12:20 J. Müller – Origin of $1/f$ - noise of strongly-correlated electrons in low-dimensional molecular metals
12:20 – 12:40 R. Pedurand, G. Hansali, V. Dolique, G. Cagnoli, L. Bellon – The CryoQPDI: a new research instrument for mechanical thermal noise investigation
12:40 – 13:00 S. Pralgauskaitė, M. Tretjak, J. Matukas, J. Macutkevič, J. Banys – Low-frequency fluctuations in composite materials with carbon nanoparticles
- 13:00 – 14:30 Lunch (J. Hevelius' Courtyard)
14:30 – 16:00 Parallel Sessions
Session III *Fluctuations in biological systems*, (Main Hall – Aula, Session Chair: I. Goychuk)
14:30 – 15:00 D. R. Chialvo – Life at the edge, complexity and criticality in biological function (*invited talk*)
15:00 – 15:20 L. B. Kish – Information storage and channel capacity of brain; an unsolved problem of noise
15:20 – 15:40 M. Barabash, W. A. T. Gibby, D. G. Luchinsky, C. Guardiani, I. A. Khovanov, P. V. E. McClintock – Combining molecular dynamics and the Chapman-Kolmogorov theory of ion transport in biological channels
15:40 – 16:00 Y. Kutovy, I. Zadorozhnyi, V. Handziuk, H. Hlukhova, M. Petrychuk, S. Vitusevich – The impact of biomolecules binding on low-frequency noise in Si NW FET biosensors
- Session IV** *Fluctuations in materials and devices*, (Room 264, Session Chair: P. Sedlák)
14:30 – 15:00 Y. F. Suprunenko, A. Stefanovska – Noise generated from a small network of time-varying phase oscillators (*invited talk*)

- 15:00 – 15:20 E. A. Miranda, A. Mehonic, W. H. Ng, J. Suñé, A. J. Kenyon – Correlated fluctuation and variability in SiO_x-based memristors: a simplified approach for circuit simulation environments
- 15:20 – 15:40 G. Cywiński, J. Przybytek, D. But, I. Yahniuk, P. Kruszewski, M. Grabowski, K. Nowakowski-Szkudlarek, P. Prystawko, P. Sai, W. Knap, G. S. Simin, S. L. Rumyantsev – Low frequency noise in wire-channel GaN/AlGaIn transistors
- 15:40 – 16:00 J. Przybytek, G. Jung – Noise features of metastable resistivity states in La_{0.86}Ca_{0.14}MnO₃ manganite
- 16:00 – 16:30 Coffee break
- 16:30 – 19:00 **Poster session**, (Main Hall – Aula)
- 17:30 – 20:00 **Committee meeting**, (Senate's Hall)

July 11, Wednesday

- 08:00 – 08:50 Breakfast (3 Smaki, see map)
- 09:00 – 10:40 **Plenary session**, (Main Hall – Aula, Session Chair: B. Andò)
- 09:00 – 09:40 F. Danneville, I. Sourikopoulos, S. Hedayat, C. Loyez, V. Hoel, A. Cappy – Open problems in brain emulating-hardware (*keynote talk*)
- 09:40 – 10:10 E. Barkai – 1/f noise on the nanoscale (*invited talk*)
- 10:10 – 10:40 M. V. Feigel'man – Non-equilibrium noise in a simple model of ageing in glassy dynamics (*invited talk*)
- 10:40 – 11:10 Coffee break
- 11:10 – 12:40 Parallel Sessions
Session V *Fluctuations in materials and devices*, (Main Hall – Aula, Session Chair: L. Varani)
- 11:10 – 11:30 E. Colomés, X. Oriols, J. Mateos, T. González – Is the nanoscale scaling of electron devices ultimately limited by noise?
- 11:30 – 11:50 E. Colomés, Z. Zhan, D. Pandey, X. Oriols – Can linear or parabolic band dispersions in 2D materials be tested by noise?
- 11:50 – 12:10 M. Petrychuk, I. Zadorozhnyi, Y. Kutovyi, S. Karg, H. Riel, S. Vitusevich – 1D electron transport in InAs nanowires
- 12:10 – 12:30 M. Seif, F. Pascal, B. Sagnes, J. El-Beyrouthy, A. Hoffmann, S. Haendler, P. Chevalier, G. Gloria – Localization of 1/f noise sources in Si/SiGe:C HBTs
- Session VI** *Theory of noise and fluctuations*, (Room 264, Session Chair: P. McClintock)
- 11:10 – 11:40 W. Belzig, J. Bülte, A. Bednorz, B. Reulet, C. Bruder – Noisy quantum measurements: just a nuisance or fundamental physics? (*invited talk*)
- 11:40 – 12:00 A. Fontana, R. Pedurand, L. Bellon – Fluctuations in a NESS: is there any universal behavior?
- 12:00 – 12:20 B. Dybiec, E. Gudowska-Nowak, I. M. Sokolov – Damped underdamped non-equilibrium stochastic harmonic oscillator
- 12:20 – 12:40 I. A. Khovanov – What is a form of the escape rate for white non-Gaussian noise?
- 12:40 – 14:00 Lunch (J. Hevelius' Courtyard)
- 14:00 – 15:50 Parallel Sessions
Session VII *Fluctuations in biological systems*, (Main Hall – Aula, Session Chair: Ł. Machura)
- 14:00 – 14:20 W. A. T. Gibby, D. G. Luchinsky, M. L. Barabash, C. Guardiani, O. F. Fedorenko, S. K. Roberts, P. V. E. McClintock – Towards a resolution of the conductivity-selectivity paradox in the NaChBac ion channel
- 14:20 – 14:40 G. Muñoz-Gil, M. A. Garcia-March, C. Manzo, A. Celi, M. Lewenstein – Anomalous diffusion in structured environments
- 14:40 – 15:00 R. Shinagawa, K. Sasaki – Enhanced diffusion in a model of molecular motors with potential switching
- 15:00 – 15:20 M. A. Farahani, M. Takagi, K. Akehi, K. Mito, T. Mizuno, N. Itakura – The analyze of conducting waves of lower leg muscle using Multichannel Surface EMG

Session VIII *Theory of noise and fluctuations*, (Room 264, Session Chair: X. Oriols)

- 14:00 – 14:30 J. Łuczka, P. Bialas – On the principle of equipartition of kinetic energy: classical versus quantum (*invited talk*)
- 14:30 – 14:50 M. Kapfer, P. Roulleau, I. Farrer, D. A. Ritchie, D. C. Glattli – Measuring the Josephson frequency of fractional charges with shot noise
- 14:50 – 15:10 K. Ptaszyński – First-passage times in single-reset and multiple-reset discrete Markovian systems
- 15:10 – 15:30 H. Zhan, G. Rastelli, W. Belzig – Light emission from noise in ac-driven contact
- 15:30 – 15:50 S. Yuvan, M. Bier – Characterizing deviations from Poissonian and IID statistics with compressed exponentials
- 15:50 – 16:10 Coffee break
- 16:10 – 17:50 Parallel Sessions
- Session IX** *Applications of noise*, (Main Hall – Aula, Session Chair: S. Pralgauskaitė)
- 16:10 – 16:30 G. Vadai, A. Antal, Z. Gingl – Spectral analysis of fluctuations in humans' daily motion using location data
- 16:30 – 16:50 J. Song, L. B. Kish – Standalone cold virtual resistor? Can we cool by a linear amplifier without non-linearity, switches, or phase transition?
- 16:50 – 17:10 V. Handziuk, F. Gasparyan, L. Vandamme, M. Coppola, V. Sydoruk, M. Petrychuk, D. Mayer, S. Vitusevich – Transport regimes in tunable gold nanoconstrictions: proposed solution by low-frequency noise spectroscopy
- 17:10 – 17:30 S. Galla, Ł. Lentka, A. Szewczyk – Supercapacitor's temperature fluctuations during charging/discharging processes
- Session X** *Noise in complex and non-linear systems*, (Room 264, Session Chair: J. Łuczka)
- 16:10 – 16:30 I. V. Tyulkina, L. S. Klimenko, D. S. Goldobin, A. Pikovsky – Effect of intrinsic noise on Chimera states in coupled Kuramoto ensembles: Towards constructing the perturbation theory for the Ott-Antonsen theory
- 16:30 – 16:50 A. Dubkov, O. Chichigina, A. Krasnova – White noise as a model of harmonic input for billiard-like systems
- 16:50 – 17:10 G. Nadzinski, M. Dobrevski, C. Anderson, P. V. E. McClintock, A. Stefanovska, M. Stankovski, T. Stankovski – Noise robustness analysis and experimental implementation of the coupling function secure communications protocol
- 17:10 – 17:30 M. Melhem, L. B. Kish – How to defend against loop current attacks in the KLJN secure key exchange scheme?
- 17:30 – 17:50 Y. Tadokoro, H. Tanaka, M. I. Dykman – Signal detection with a noisy nanomechanical bifurcation amplifier
- 19:00 – 23:00 Banquet (J. Hevelius' Courtyard)
Banquet talk by Michael Shlesinger – Pitfalls and paradoxes in the history of probability theory

July 12, Thursday

- 08:00 – 08:50 Breakfast (3 Smaki, see map)
- 09:00 – 10:40 **Plenary session**, (Main Hall – Aula, Session Chair: S. Romyantsev)
- 09:00 – 09:40 M. Levinshtein, V. Dergachev, A. Dmitriev, P. Shmakov – Lorentzians vs global warming hysteresis (*keynote talk*)
- 09:40 – 10:10 B. Andò, S. Baglio, A. R. Bulsara, V. Marletta – Open problems of utilizing noise in energy harvesting systems (*invited talk*)
- 10:10 – 10:40 N. Lörch, Y. Zhang, C. Bruder, M. I. Dykman – Fluctuations and time-translation symmetry breaking in vibrational Floquet systems (*invited talk*)
- 10:40 – 11:10 Coffee break

- 11:10 – 12:50 Parallel Sessions
Session XI *Noise in complex and non-linear systems*
Other topics of noise and fluctuations including weather and society, (Main Hall – Aula, Session Chair: N. Lörch)
- 11:10 – 11:40 C. Ciofi, G. Scandurra, G. Giusi – Unsolved problems in instrumentation for noise measurements (*invited talk*)
- 11:40 – 12:00 T. Kosztołowicz – How fluctuations of membrane permeability parameter influence on subdiffusion in a membrane system
- 12:00 – 12:20 G. Scandurra, S. Beyne, G. Cannatà, G. Giusi, C. Ciofi – On the design of an automated system for the characterization of the electromigration performance of advanced interconnects by means of low frequency noise measurements
- 12:20 – 12:40 L. B. Kish – Mathematical model for the impact of political correctness on science
- Session XII** *Theory of noise and fluctuations*, (Room 264, Session Chair: W. Belzig)
- 11:10 – 11:30 A. Dubkov – The problems of finding the steady-state probabilistic characteristics for nonlinear dynamical systems driven by white Poisson noise
- 11:30 – 11:50 Z. Kolodiy – Flicker noise problem
- 11:50 – 12:10 J. Spiechowicz, J. Łuczka – Subdiffusion via dynamical localization induced by thermal equilibrium fluctuations
- 12:10 – 12:30 M. Majka – How to embed the self-assembly dynamics in the Langevin equations with spatio-(temporally) correlated noise?
- 12:30 – 12:50 V. Holubec, T. Novotný – Effects of noise-induced coherence on the performance of quantum absorption refrigerators
- 12:50 – 13:10 Closing Ceremony, (Main Hall – Aula)
- 13:10 – 14:30 Lunch (J. Hevelius' Courtyard)
- 16:00 – 20:00 Excursion to Old Town (meeting at the front of the Main Building)

July 13, Friday

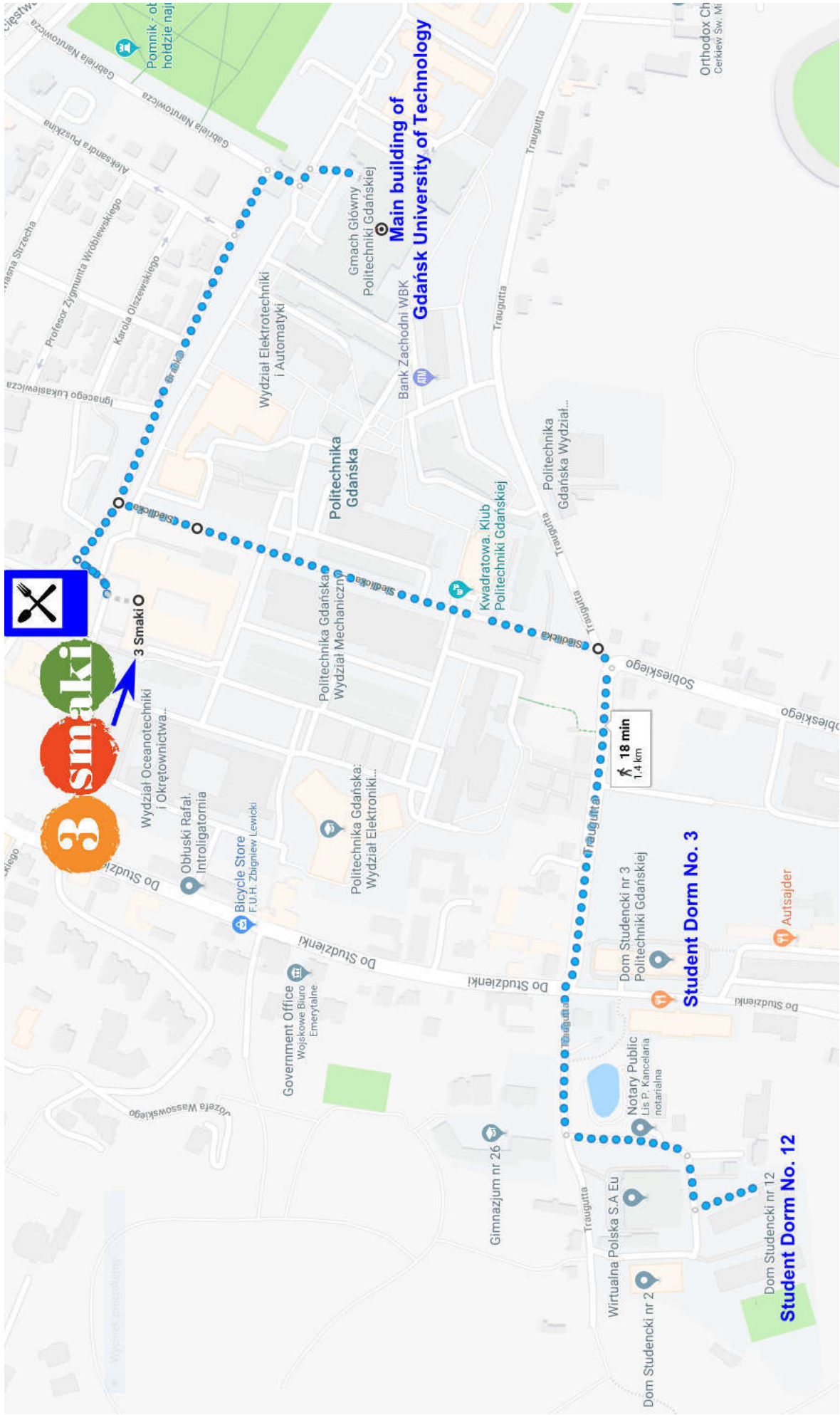
- 08:00 – 09:00 Courtesy Breakfast and Goodbye – Social (3 Smaki, see map)

POSTERS

(in an alphabetical order)

- H. Asada, K. Akehi, M. A. Farahani, N. Itakura, T. Mizuno – A study on simple measurement of mental and physical burden of patients during dental treatment
- S. Babicz, B. Stawarz-Graczyk – Fluctuations of the red blood cells
- A. Bednorz, M. Frączak, S. Sołtan, W. Belzig – Is energy conserved when nobody looks?
- A. Crépieux, S. Sahoo, T. Q. Duong, R. Zamoum, M. Lavagna – Finite-frequency noise in a Kondo quantum dot with asymmetric coupling to the reservoirs
- Z. Czaja, M. Kowalewski – A noise signal generation method for microcontrollers with DACs
- A. Geremew, S. Rumyantsev, M. A. Bloodgood, T. T. Salguero, A. A. Balandin – Low-frequency noise in quasi-1D van der Waals nanowires implemented with transition metal trichalcogenides
- J. Glemža, V. Palenskis, S. Pralgauskaitė, J. Matukas – The relation between electrical fluctuations and current-voltage characteristics of the mid-IR laser diodes in the subthreshold region
- R. Kumagai, M. Uchida – Fluctuation analysis of synchronous repetitive handwriting
- Ł. Lentka, J. Smulko – Simplified method of trend removal to determine noise observed during supercapacitor's discharging
- F. Mívalt, J. Majzner, V. Sedláková, P. Kuberský, J. Smulko, P. Sedlák – Effect of analyte flow on the voltage fluctuations of gas chemiresistors

- T. Murata, M. A. Farahani, K. Akehi, K. Mito, N. Italura, T. Mizuno – Investigate of feeling estimation for content viewer focusing on skin surface temperature distribution using facial thermal images
- M. Panek – Application of the correlation methods to measurement of the IR detectors noise spectral density
- S. Sakamoto, K. Akehi, M. A. Farahani, N. Itakura, T. Mizuno – Study on mental load measurement of center of gravity fluctuation in sitting position
- J. Siódmiak, P. Bełdowski – Hyaluronic acid dynamics and its interaction with synovial fluid components as a source of the color noise
- A. Szewczyk, Ł. Lentka, J. Smulko – Noise measurements in supercapacitors at selected floating voltages
- M. Tretjak, S. Pralgauskaitė, J. Matukas, J. Macutkevič, J. Banys – Low frequency noise and resistivity characteristics of epoxy composites with onion-like carbon and multi-walled carbon nanotubes
- I. S. Virt, M. Bester, O. Didovska – Determination of low frequency noise in polycrystalline ZnO



SIGHTSEEING GDAŃSK 12TH JULY 2018

Bus departure: 16:00 (meeting at the front of the Main Building, Gdańsk University of Technology).

Gdańsk Main Town:

- Green Gate, The Long Warf and the Motława river
- Mariacka Gate
- The Old Crane
- Mariacka Street, St. Mary's Basilica
- Royal Chapel
- Beer Street and The Great Armory
- Golden Gate, Prison Tower, Long Street and The Long Market, Main City Hall, Artus Court, Golden House, Neptune's Fountain
- Piwnica Rajców from 6.00 pm - regional beer tasting, dinner (address: Długi Targ 44, 80-980 Gdańsk, in front of the Neptune's Fountain).

Return to the hotels/dorms on your own.

