



Tuesday, June 17

8:00-8:30 Registration

8:30-9:00 Conference Opening

Plenary Talk:

9:00-10:00 • Dante R. Chialvo: *The brain at the edge*

Session chair: Janusz Smulko

10:00-10:30 **Coffee break**

Session Biological Systems I

- 10:30-11:30
- K. P. Komáromi, B. Maczák, G. Vadai: *The effects of examination methods on describing the scale-free nature of human locomotor activity* [BIO02; 10:30-10:50].
 - W.A.T. Gibby, D.G. Luchinsky, I.A. Khovanov, P.V.E. McClintock: *Phase structure of conduction in ion channels* [BIO03; 10:50-11:10].
 - B. Maczák, Cs. G. Horváth, B. Rozner, S. Kim, R. Bódizs, G. Vadai: *Challenges of assessing fluctuations in actigraphic acceleration data under sleep and wakefulness* [BIO04; 11:10-11:30]

Session chair: Ken Kiyono

Session Electron Devices I

- 11:30-12:40
- F. M. Puglisi: *Random Telegraph Noise Complexity Originates from Electrostatic Interactions and Defects Motion* (Invited) [INV01, 11:30-12:00].
 - R. Chatzipantelis, L. Chevas, N. Makris, M. Bucher: *Noise Propagation and Statistic Variability in MOSFETs Using Probability Density Functions* [ED01; 12:00-12:20].
 - B. Sagnes, M. Bouhouche, A. Hoffmann, J. Boch, T. Maraine, S. Haendler, P. Chevalier, D. Gloria, F. Pascal: *X-Rays impact on Generation-Recombination Low-Frequency Noise components for advanced Si/SiGe:C HBTs* [ED02; 12:20-12:40].

Session chair: Christoforos Theodorou



Tuesday, June 17

12:40-14:00 **Lunch**

Session Electron Devices II

- L. Van Brandt, M. Bonnin, M. Banaszkeski da Silva, P. Bolcato, G. Wirth, D. Flandre and J.C. Delvenne: *Modeling and Predicting Noise-Induced Failure Rates in Ultra-Low-Voltage SRAM Bitcells Affected by Process Variations* (Invited) [INV02; 14:00-14:30].
- J. Smulko, K. Drozdowska: *Gas sensing by flicker noise in Au-decorated graphene layers modulated by plasmonic resonance* [ED03 14:30-14:50].
- 14:00-15:50 • F. M. Puglisi: *The Stochastic Nature of Random Telegraph Noise* [ED04; 14:50-15:10].
- I. Pliaterytė, L. Dundulis, A. Špokas, A. Zelioli, M. Kamarauskas, A. Bičiūnas, J. Glemža, B. Čechavičius, S. Pralgauskaitė, R. Butkutė, J. Matukas: *Low Frequency Noise Spectroscopy of GaAsBi QW Structures for NIR Light Sources* [ED05;15:10-15:30].
- M. Bouhouche, B. Sagnes, A. Hoffmann, J. Boch, T. Maraine, A. Gauthier, P. Chevalier, D. Gloria, F. Pascal: *1/f Noise study in second generation of 55 nm BiCMOS Si/SiGe:C HBTs* [ED06; 15:30-15:50].

Session chair: Fabien Pascal

16:00-16:30 **Coffee break**

IEEE-ESF FET 100 Celebration

- 16:30-18:00
- Cor Claves: *A Century Field Effect Transistor: Past, Trends and Challenges for the Next Decade*

Welcome Cocktail

19:00-20:00

Location: Excelsior Palace Hotel (conference venue)



Wednesday, June 18

8:30-9:00 Registration

Plenary Talk:

9:00-10:00 • Elisabetta Paladino: *1/f noise in quantum nanoscience*

Session chairs: Wolfgang Belzig, Bertand Reulet

10:00-10:30 **Coffee break**

Session Quantum Noise and Devices I (special session)

• M. Ruelle, H. Bartolomei, M. Kumar, E. Frigerio, E. Baudin, J.-M. Berroir, B. Plaçais, A. Cavanna, U. Gennser, Y. Jin, G. Ménard, G. Feve: *Investigating anyon fractional statistics via noise measurements* (Invited) [INV03; 10:30-11:00].

• D. Pustovyi, M. Petrychuk, A. Fujiwara, Y. Zhang, H. Long, V. Chekubasheva, S. Vitusevich: *Quantum Channel FETs for Advanced Biosensors* [QN01 11:00-11:20].

• C. Farley, B. Reulet: *Absence of skewness in the voltage fluctuations of a tunnel junction in the quantum regime* [QN03; 11:20-11:40].

10:30-12:40

• K. Kawa, K. Roszak, R. Filip, T. Novotný: *Autonomous Steady-State Entanglement in Two-Mode Bosonic Systems Coupled to Uncorrelated Baths* [QN04 11:40-12:00].

• T. Jonckheere, K. Iyer, F. Ronetti, B. Grémaud, T. Martin, J. Rech, E. Baudin, J.-M. Berroir, G. Fève, E. Frigerio, G. Ménard, B. Plaçais, M. Ruelle, A. Cavanna, U. Gennser, Y. Jin *Time-dependent study of anyonic excitations in the Fractional Quantum Hall effect* [QN05; 12:00-12:20].

• L. Pierattelli, F. Taddei, A. Braggio, *ΔT -noise in hybrid superconducting nanodevices* [QN06 12:20-12:40].

Session chairs: Wolfgang Belzig, Bertrand Reulet



Wednesday, June 18

12:40-14:00 **Lunch**

Session Theory and Stochastic Processes I

- N. Kenarangui, A. Powalka and L. B. Kish: *Quantum Supremacy Challenged: Instantaneous Noise-based Logic* (Invited), [INV05; 14:00-14:30].
- 14:00-15:10 • L. Varani, F. Intini, L. Reggiani: *The fine-structure constant as equilibrium photon-number shot-noise of a black-body* [TS01; 14:30-14:50].
- R. Balog, C. Singh, K. Davis, L. B. Kish: *Beyond Security: Leveraging Noise-Based Watermarking for Power Source Identification in Smart Grids* [TS05; 14:50-15:10].

Session chair: Gergely Vadai

Session Biological Systems II

- Y. Ilan: *The role of noise in biological systems: Using noise for overcoming malfunctions in biological systems* (Invited) [INV06; 15:10-15:40].
- 15:10-16:00 • K. Kiyono, K. Hiroya, S. Lee: *Decorrelation of the Mean-Variance Correlation in Heart Rate Variability via the q -Logarithmic Transform* [BIO06; 15:40-16:00].

Session chair: Peter McClintock

16:00-16:30 **Coffee Break**

Session Biological Systems III

- M. Huotari, The Correlation Coefficient Analysis based on Electrocardiographic and Photonic measurements [BIO08; 16:30-16:50].
- 16:30-17:10 • S. Lee, K. Kiyono: *Detrended Moving Average Cross-Correlation Analysis of Interaural Interaction in Contralateral Suppression* [BIO05; 16:50-17:10].
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Session chair: Peter McClintock



Wednesday, June 18

Session Quantum Noise and Devices II (special session)

17:10-18:20

- J. Ankerhold: *Monitoring charge noise in superconducting circuits via photon emission* (Invited) [INV04; 17:10-17:40].
- I. Safi: *Revisting minimal excitations in non-linear conductors* [QN07 17:40-18:00].
- W. Belzig, D. Boness, M. Dykman: *Quantum Noise-assisted phase-flip rate in a biased parametric oscillator* [QN08; 18:00-18:20]

Session chairs: Wolfgang Belzig, Bertrand Reulet

Gala Dinner

21:00-23:00

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Thursday, June 19

8:30-9:00 Registration

Plenary Talk:

9:00-10:00 • S. Tarucha: *Spin Qubit Noise and Qubit Performance in Silicon*

Session chairs: Massimo Macucci

10:00-10:30 **Coffee break / Poster session¹**

Session Electron Devices III

- W. Shin: *Low-frequency noise in gas sensors* (Invited) [INV07; 10:30-11:00].
- A. Barsotti, M. Macucci, P. Marconcini: *Simple derivation of Hooge-like dependence on the number of carriers for number-fluctuation noise* [ED07; 11:00-11:20].
- R. Solis Léon, L. Enger, S. K. Chaluvadi, V. Polewczyk, A. Y. Petrov, G. Vinai, L. Braglia, J. M. Diez, V. Pierron, P. Perna, P. Torelli, P. Orgiani, S. Flament, L. Méchin, B. Guillet: *Progress status in low frequency noise AMR LSMO sensors* [ED08; 11:20-11:40].
- M. Franco, N. Morisset, A. Diaz, C. Theodorou, L. Rubaldo, Q. Raffhay: *Diffusion and trap-assisted tunnelling noise in low temperature reverse-biased HgCdTe diodes* [ED09; 11:40-12:00].

Session chairs: Gino Giusi

Session Theory and Stochastic Processes II

- C. Chamon: *Thermal Noise Communication: Low Power or Hot Air?* [TS03; 12:00-12:20].
- S. A. Flanery, A. Trapani, C. Chamon, L. Nazhandali: *Duality on the Thermodynamics of the Kirchhoff-Law-Johnson-Noise (KLJN) Secure Key Exchange Scheme* [TS04; 12:20-12:40].

Session chair: Luca Varani

¹ Posters are listed on page 9.



Thursday, June 19

12:40-14:00 **Lunch**

Session Materials and Reliability

- J.G. Tartarin, D. Saugnon: *Robustness of GaAs and GaN LNAs in X- and Ku-band: performances and strategies of protection under jamming or destructive signal* [MR02;14:00-14:20].
- G. I. Wirth, T. H. Both, M. B. Silva and L. Van Brandt: *Statistical Modeling of Timing Variability due to Random Telegraph Noise* [MR03;14:20-14:40].
- F. Mireckas, D. Meisak, S. Pralgauskaitė, J. Macutkevič, J. Matukas, J. Banys: *Low Frequency Noise and Resistivity of Hybrid MWCNT/Ni@C/Epoxy Composites* [MR01;14:40-15:00].

Session chair: Sandra Pralgauskaitė

Session Electron Devices IV

- Q. Eynaud, E. Masarweh, V. Kilchytska, N. Marchal, D. Flandre, L. Van Brandt: *Noise Analysis in Screen-Printed Carbon-Black Resistive Gauges Towards Strain Sensors* [ED10;15:00-15:20].
- A. Diaz, C. Wulles, M. Franco, A. Albouy, P. Leduc, C. Theodorou, Q. Raffay: *Assessing contact quality of Si p-n diodes through series resistance noise characterization* [ED12;15:20-15:40].
- R. H. Koo, J.H. Lee, W. Shin: *Impact of 1/f Noise in Scaled FeFET Devices on Hardware Neuromorphic System Performance* [ED13;15:40-16:00].

Session chairs: Massimo Macucci

16:00-16:30 **Coffee Break / Poster session²**

² Posters are listed on page 9



Thursday, June 19

Session Circuit and Systems

- 16:30-17:50
- D. Prousalis, V. Ntinis, C. Theodorou, I. Messaris, A. S. Demirkol, R. Tetzlaff: *Noise-Coupled Memristor Cellular Neural Networks* [CS01;16:30-16:50].
 - K. Song, M. Bonnin, F. Traversa, F. Bonani, *Design and optimization of stochastically driven multi degrees of freedom energy harvesters using equivalent circuits and swarm intelligence algorithms* [CS02; 16:50-17:10].
 - L. Désoppi, B. Reulet, *Link between Continuous and Discrete Descriptions of Noise in Nonlinear Resistive Electrical Components* [CS03; 17:10-17:30].
 - M. Bonnin, J. C. Delvenne, L. Van Brandt, F. Traversa, F. Bonani, *Thermodynamically consistent noise modeling in nonlinear circuits* [CS04;17:30-17:50].

Session chairs: Michele Bonnin, Leopold Van Brandt



Friday, June 20

8:30-9:00	Registration
	Plenary Talk:
9:00-10:00	• Thomas Schneider: <i>Low-noise Terahertz Sources</i> Session chair: Luca Varani
10:00-10:30	Coffee break
	Session Instrumentation
10:30-12:00	• I. Fiori, F. Paoletti, V. Dattilo, <u>M. C. Tringali</u>: <i>Environmental noise challenges for the Virgo detector</i> (Invited) [INV08; 10:30-11:00]. • K. Achtenberg, <u>C. Ciofi</u>, G. Scandurra: <i>BJT-Input transimpedance amplifier for current noise measurements in low impedance devices</i> [IN02; 11:00-11:20]. • A. Barsotti, P. Marconcini, G. Procissi, <u>M. Macucci</u>: <i>Analysis of the effect of phase noise in the reference oscillator of a qubit control system</i> [IN03; 11:20-11:40]. • <u>J.M. Routoure</u>, S. Lebargy, J. Gasnier, L. Bessin, N. Germain: <i>What sounds make noises?</i> [IN04; 11:40-12:00]. • <u>M. Pinto</u>, M. Mantovani, P. Ruggi, D. Bersanetti, J. Casanueva, M. Boldrini: <i>Control accuracy and control noise in gravitational wave detectors</i>: [IN05; 12:00-12:20]. Session chairs: Graziella Scandurra
12:00-12:40	Conference closing
12:40-14:00	Lunch



List of Posters

- M. Fomin, F. Steinbach, D. Pustovyi, N. Füllbrunn, C. Ungermann, S. Vitusevich, M. Petrychuk, C. Meyer, *Dynamics of Membrane Proteins Analyzed Using 1/f Noise in GFETs* [BIO01].
- M. Hinatsu, M. Mineta, H. Hiramatsu, V. R. Kudkyl, K. Hayashi, T. Kawahara, S. Nakakita, Y. Watanabe, T. Ono, Y. Kanai, K. Matsumoto *Preservability and fluctuation of the binding activity of sugar chains to influenza viruses* [BIO07].
- A. Diaz, C. Jouanneau, T. Bidaud, M. Darnon, G. Hamon, C. Theodorou, Q. Rafhay: *A current and LFN method for individually assessing layer quality in III-V multi-junctions solar cell* [ED11].
- L. Reggiani, E. Alfinito, F. Intini, L. Varani: *Fundamental quantum and relativistic formulation of noise and conductance in a 1D quasi-particle ensemble under ballistic transport-regime at thermal equilibrium* [QN02].
- Z. Kolodiy: *Simulation of Fluctuations with 1/f Spectrum* [TS02].
- G. Scandurra, E. Cardillo, L. Ferro, G. Giusi, C. Ciofi: *On the instrumentation for current noise measurements in low impedance devices* [IN01].

Note: authors will be available for questions and discussion on Thursday, June 19, from 10:00 to 10:30 and from 16:00 to 16:30.