

Stanford



Peter Tass

Professor of Neurosurgery

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Dr. Peter Tass investigates and develops neuromodulation techniques for understanding and treating neurologic conditions such as Parkinson's disease, epilepsy, dysfunction following stroke and tinnitus. He creates invasive and non-invasive therapeutic procedures by means of comprehensive computational neuroscience studies and advanced data analysis techniques. The computational neuroscience studies guide experiments that use clinical electrophysiology measures, such as high density EEG recordings and MRI imaging, and various outcome measures. He has pioneered a neuromodulation approach based on thorough computational modelling that employs dynamic self-organization, plasticity and other neuromodulation principles to produce sustained effects after stimulation. To investigate stimulation effects and disease-related brain activity, he focuses on the development of stimulation methods that cause a sustained neural desynchronization by an unlearning of abnormal synaptic interactions. He also performs and contributes to pre-clinical and clinical research in related areas.

ACADEMIC APPOINTMENTS

- Professor, Neurosurgery
- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Member of the European Academy of Sciences and Arts, European Academy of Sciences and Arts, Salzburg, Austria (2012)
- Nicolaus August Otto Innovation Prize, City of Cologne, Germany (2011)
- German Innovation Award in Medicine, Worch Foundation (2011)
- Rapid Response Innovation Award, The Michael J. Fox Foundation for Parkinson's Research (2010)
- Rapid Response Innovation Award, The Michael J. Fox Foundation for Parkinson's Research (2009)
- Runner-up for the German future prize 2006, President of the Federal Republic of Germany (2006)
- Erwin Schrödinger prize, Hermann von Helmholtz Association of German Research Centres (2005)
- Fritz Winter prize, Fritz Winter foundation, Academy of Sciences of North Rhine-Westphalia, Germany (2000)

PROFESSIONAL EDUCATION

- Habilitation thesis, RWTH Aachen University, Aachen, Germany , Physiology (2001)

- Diploma (master's degree), University of Stuttgart, Germany , Mathematics (1993)
- PhD, University of Stuttgart, Germany , Physics (1993)
- MD, Universities of Ulm and Heidelberg, Germany , Medicine (1989)

LINKS

- Peter Tass Lab: <http://med.stanford.edu/tass-lab>
- Peter Tass on ResearchGate: https://www.researchgate.net/profile/Peter_Tass
- Stanford Neurosurgery: <http://med.stanford.edu/neurosurgery.html>

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Ali Khaledi Nasab, Justus Kromer

Postdoctoral Research Mentor

Tina Munjal

Publications

PUBLICATIONS

- **Entrainment of a network of interacting neurons with minimum stimulating charge** *PHYSICAL REVIEW E*
Pyragas, K., Fedaravicius, A. P., Pyragiene, T., Tass, P. A.
2020; 102 (1): 012221
- **Brain-Responsive Neurostimulation for Loss of Control Eating: Early Feasibility Study.** *Neurosurgery*
Wu, H., Adler, S., Azagury, D. E., Bohon, C., Safer, D. L., Barbosa, D. A., Bhati, M. T., Williams, N. R., Dunn, L. B., Tass, P. A., Knutson, B. D., Yutsis, M., Fraser, et al
2020
- **Technology of deep brain stimulation: current status and future directions.** *Nature reviews. Neurology*
Krauss, J. K., Lipsman, N., Aziz, T., Boutet, A., Brown, P., Chang, J. W., Davidson, B., Grill, W. M., Hariz, M. I., Horn, A., Schulder, M., Mammis, A., Tass, et al
2020
- **Impact of number of stimulation sites on long-lasting desynchronization effects of coordinated reset stimulation** *CHAOS*
Kromer, J. A., Khaledi-Nasab, A., Tass, P. A.
2020; 30
- **Adaptive delivery of continuous and delayed feedback deep brain stimulation - a computational study.** *Scientific reports*
Popovych, O. V., Tass, P. A.
2019; 9 (1): 10585
- **Acoustic coordinated reset therapy for tinnitus with perceptually relevant frequency spacing and levels** *Scientific Reports*
Tass, P. A., Silchenko, A. N., Popelka, G. R.
2019; 9: 13607
- **Dendritic and Axonal Propagation Delays May Shape Neuronal Networks With Plastic Synapses** *FRONTIERS IN PHYSIOLOGY*
Asl, M., Valizadeh, A., Tass, P. A.
2018; 9
- **Optimal waveform for entrainment of a spiking neuron with minimum stimulating charge** *PHYSICAL REVIEW E*
Pyragas, K., Fedaravicius, A. P., Pyragiene, T., Tass, P. A.
2018; 98 (4)

- **Propagation delays determine neuronal activity and synaptic connectivity patterns emerging in plastic neuronal networks.** *Chaos (Woodbury, N.Y.)*
Madadi Asl, M., Valizadeh, A., Tass, P. A.
2018; 28 (10): 106308
- **Propagation delays determine neuronal activity and synaptic connectivity patterns emerging in plastic neuronal networks** *CHAOS*
Asl, M., Valizadeh, A., Tass, P. A.
2018; 28 (10)
- **Periodic flashing coordinated reset stimulation paradigm reduces sensitivity to ON and OFF period durations** *PLOS ONE*
Tyulmankov, D., Tass, P. A., Bokil, H.
2018; 13 (9): e0203782
- **Delay-Induced Multistability and Loop Formation in Neuronal Networks with Spike-Timing-Dependent Plasticity** *SCIENTIFIC REPORTS*
Asl, M., Valizadeh, A., Tass, P. A.
2018; 8: 12068
- **Computationally Developed Sham Stimulation Protocol for Multichannel Desynchronizing Stimulation** *FRONTIERS IN PHYSIOLOGY*
Zeitler, M., Tass, P. A.
2018; 9: 512
- **How stimulation frequency and intensity impact on the long-lasting effects of coordinated reset stimulation** *PLOS COMPUTATIONAL BIOLOGY*
Manos, T., Zeitler, M., Tass, P. A.
2018; 14 (5): e1006113
- **Short-Term Dosage Regimen for Stimulation-Induced Long-Lasting Desynchronization** *FRONTIERS IN PHYSIOLOGY*
Manos, T., Zeitler, M., Tass, P. A.
2018; 9: 376
- **Multisite Delayed Feedback for Electrical Brain Stimulation** *FRONTIERS IN PHYSIOLOGY*
Popovych, O. V., Tass, P. A.
2018; 9: 46
- **Neuronal connectivity in major depressive disorder: a systematic review** *NEUROPSYCHIATRIC DISEASE AND TREATMENT*
Helm, K., Viol, K., Weiger, T. M., Tass, P. A., Grefkes, C., del Monte, D., Schiepek, G.
2018; 14: 2715–37
- **Letter: Electric Beats Open New Frontiers for Deep Brain Stimulation.** *Neurosurgery*
Halpern, C. H., Miller, K. J., Wu, H., Tass, P. A.
2018; 82 (1): E19–E20
- **Neuronal connectivity in major depressive disorder: a systematic review.** *Neuropsychiatric disease and treatment*
Helm, K., Viol, K., Weiger, T. M., Tass, P. A., Grefkes, C., Del Monte, D., Schiepek, G.
2018; 14: 2715–37
- **Dendritic and Axonal Propagation Delays May Shape Neuronal Networks With Plastic Synapses.** *Frontiers in physiology*
Madadi Asl, M., Valizadeh, A., Tass, P. A.
2018; 9: 1849
- **Coordinated Reset Vibrotactile Stimulation Shows Prolonged Improvement in Parkinson's Disease** *MOVEMENT DISORDERS*
Syrkin-Nikolau, J., Neuville, R., O'Day, J., Anidi, C., Koop, M., Martin, T., Tass, P. A., Bronte-Stewart, H.
2018; 33 (1): 179–80
- **Letter: Electric Beats Open New Frontiers for Deep Brain Stimulation** *NEUROSURGERY*
Halpern, C. H., Miller, K. J., Wu, H., Tass, P. A.
2018; 82 (1): E19–E20
- **Closed-loop deep brain stimulation by pulsatile delayed feedback with increased gap between pulse phases** *SCIENTIFIC REPORTS*
Popovych, O. V., Lysyansky, B., Tass, P. A.
2017; 7

- **Pulsatile desynchronizing delayed feedback for closed-loop deep brain stimulation** *PLOS ONE*
Popovych, O. V., Lysyansky, B., Rosenblum, M., Pikovsky, A., Tass, P. A.
2017; 12 (3): e0173363
- **Acute effects and after-effects of acoustic coordinated reset neuromodulation in patients with chronic subjective tinnitus.** *NeuroImage. Clinical*
Adamchic, I., Toth, T., Hauptmann, C., Walger, M., Langguth, B., Klingmann, I., Tass, P. A.
2017; 15: 541–58
- **Sensorimotor rhythm neurofeedback as adjunct therapy for Parkinson's disease.** *Annals of clinical and translational neurology*
Philippens, I. H., Wubben, J. A., Vanwersch, R. A., Estevao, D. L., Tass, P. A.
2017; 4 (8): 585–90
- **Vibrotactile Coordinated Reset Stimulation for the Treatment of Neurological Diseases: Concepts and Device Specifications.** *Cureus*
Tass, P. A.
2017; 9 (8): e1535
- **Dendritic and Axonal Propagation Delays Determine Emergent Structures of Neuronal Networks with Plastic Synapses** *Scientific Reports*
Madadi Asl, M., Valizadeh, A., Tass, P. A.
2017; 7: 39682
- **Validation of a Mobile Device for Acoustic Coordinated Reset Neuromodulation Tinnitus Therapy** *JOURNAL OF THE AMERICAN ACADEMY OF AUDIOLOGY*
Hauptmann, C., Wegener, A., Poppe, H., Williams, M., Popelka, G., Tass, P. A.
2016; 27 (9): 720-731
- **Capacitive Feedthroughs for Medical Implants** *FRONTIERS IN NEUROSCIENCE*
Grob, S., Tass, P. A., Hauptmann, C.
2016; 10
- **Anti-kindling Induced by Two-Stage Coordinated Reset Stimulation with Weak Onset Intensity** *FRONTIERS IN COMPUTATIONAL NEUROSCIENCE*
Zeitler, M., Tass, P. A.
2016; 10
- **Noise-enhanced coupling between two oscillators with long-term plasticity** *PHYSICAL REVIEW E*
Luecken, L., Popovych, O. V., Tass, P. A., Yanchuk, S.
2016; 93 (3)
- **SUPPRESSION OF SPONTANEOUS OSCILLATIONS IN HIGH-FREQUENCY STIMULATED NEURON MODELS** *LITHUANIAN JOURNAL OF PHYSICS*
Pyragas, K., Tass, P. A.
2016; 56 (4): 223-238
- **The Spacing Principle for Unlearning Abnormal Neuronal Synchrony** *PLOS ONE*
Popovych, O. V., Xenakis, M. N., Tass, P. A.
2015; 10 (2)
- **Maladaptive neural synchrony in tinnitus: origin and restoration** *FRONTIERS IN NEUROLOGY*
Eggermont, J. J., Tass, P. A.
2015; 6
- **Mathematical modeling of chemotaxis and glial scarring around implanted electrodes** *NEW JOURNAL OF PHYSICS*
Silchenko, A. N., Tass, P. A.
2015; 17
- **Acoustic Coordinated Reset Neuromodulation in a Real Life Patient Population with Chronic Tonal Tinnitus.** *BioMed research international*
Hauptmann, C., Ströbel, A., Williams, M., Patel, N., Wurzer, H., von Stackelberg, T., Brinkmann, U., Langguth, B., Tass, P. A.
2015; 2015: 569052-?
- **Augmented brain function by coordinated reset stimulation with slowly varying sequences.** *Frontiers in systems neuroscience*
Zeitler, M., Tass, P. A.

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- **Acoustic Coordinated Reset Neuromodulation in a Real Life Patient Population with Chronic Tonal Tinnitus** *BIOMED RESEARCH INTERNATIONAL*
Hauptmann, C., Stroebel, A., Williams, M., Patel, N., Wurzer, H., von Stackelberg, T., Brinkmann, U., Langguth, B., Tass, P. A.
2015
- **Coordinated reset stimulation in a large-scale model of the STN-GPe circuit** *FRONTIERS IN COMPUTATIONAL NEUROSCIENCE*
Ebert, M., Hauptmann, C., Tass, P. A.
2014; 8
- **Coordinated Reset Neuromodulation for Parkinson's Disease: Proof-of-Concept Study** *MOVEMENT DISORDERS*
Adamchic, I., Hauptmann, C., Barnikol, U., Pawelczyk, N., Popovych, O., Barnikol, T., Silchenko, A., Volkman, J., Deuschl, G., Meissner, W. G., Maarouf, M., Sturm, V., Freund, et al
2014; 29 (13): 1679–84
- **Interoperable atlases of the human brain** *NEUROIMAGE*
Amunts, K., Hawrylycz, M. J., Van Essen, D. C., Van Horn, J. D., Harel, N., Poline, J., De Martino, F., Bjaalie, J. G., Dehaene-Lambertz, G., Dehaene, S., Valdes-Sosa, P., Thirion, B., Zilles, et al
2014; 99: 525-532
- **Abnormal cross-frequency coupling in the tinnitus network** *FRONTIERS IN NEUROSCIENCE*
Adamchic, I., Langguth, B., Hauptmann, C., Tass, P. A.
2014; 8
- **Reversing pathologically increased EEG power by acoustic coordinated reset neuromodulation** *HUMAN BRAIN MAPPING*
Adamchic, I., Toth, T., Hauptmann, C., Tass, P.
2014; 35 (5): 2099–2118
- **Control of abnormal synchronization in neurological disorders** *FRONTIERS IN NEUROLOGY*
Popovych, O., Tass, P. A.
2014; 5
- **Control of abnormal synchronization in neurological disorders.** *Frontiers in neurology*
Popovych, O. V., Tass, P. A.
2014; 5: 268-?
- **Mechanism of suppression of sustained neuronal spiking under high-frequency stimulation** *BIOLOGICAL CYBERNETICS*
Pyragas, K., Novicenko, V., Tass, P.
2013; 107 (6): 669–84
- **Self-organized noise resistance of oscillatory neural networks with spike timing-dependent plasticity** *SCIENTIFIC REPORTS*
Popovych, O. V., Yanchuk, S., Tass, P. A.
2013; 3: 2926
- **Computational modeling of chemotactic signaling and aggregation of microglia around implantation site during deep brain stimulation** *EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS*
Silchenko, A. N., Tass, P. A.
2013; 222 (10): 2647–53
- **Impact of acoustic coordinated reset neuromodulation on effective connectivity in a neural network of phantom sound** *NEUROIMAGE*
Silchenko, A. N., Adamchic, I., Hauptmann, C., Tass, P. A.
2013; 77: 133–47
- **Desynchronization boost by non-uniform coordinated reset stimulation in ensembles of pulse-coupled neurons** *FRONTIERS IN COMPUTATIONAL NEUROSCIENCE*
Lueken, L., Yanchuk, S., Popovych, O. V., Tass, P. A.
2013; 7: 63
- **Neuromodulation: selected approaches and challenges** *JOURNAL OF NEUROCHEMISTRY*
Parpura, V., Silva, G. A., Tass, P. A., Bennet, K. E., Meyyappan, M., Koehne, J., Lee, K. H., Andrews, R. J.
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- **Rebuttal to reply by G. Rucker and G. Antes on Tass et al. "Counteracting tinnitus by acoustic coordinated reset neuromodulation", *Restorative Neurology and Neuroscience* Vol. 30(2), 2012 *RESTORATIVE NEUROLOGY AND NEUROSCIENCE***
Tass, P. A., Adamchic, I., Freund, H., von Stackelberg, T., Hauptmann, C.
2013; 31 (3): 235–37
- **optimal number of stimulation contacts for coordinated reset neuromodulation *Frontiers in neuroengineering***
Lysyansky, B., Popovych, O., Tass, P. A.
2013; 6: 5
- **Psychometric Evaluation of Visual Analog Scale for the Assessment of Chronic Tinnitus *AMERICAN JOURNAL OF AUDIOLOGY***
Adamchic, I., Langguth, B., Hauptmann, C., Tass, P.
2012; 21 (2): 215–25
- **Coordinated reset has sustained aftereffects in Parkinsonian monkeys *ANNALS OF NEUROLOGY***
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2012; 72 (5): 816–20
- **Linking the Tinnitus Questionnaire and the subjective Clinical Global Impression: Which differences are clinically important? *HEALTH AND QUALITY OF LIFE OUTCOMES***
Adamchic, I., Tass, P., Langguth, B., Hauptmann, C., Koller, M., Schecklmann, M., Zeman, F., Landgrebe, M.
2012; 10: 79
- **Desynchronizing electrical and sensory coordinated reset neuromodulation *FRONTIERS IN HUMAN NEUROSCIENCE***
Popovych, O. V., Tass, P. A.
2012; 6: 58
- **Unlearning tinnitus-related cerebral synchrony with acoustic coordinated reset stimulation: theoretical concept and modelling *BIOLOGICAL CYBERNETICS***
Tass, P. A., Popovych, O. V.
2012; 106 (1): 27–36
- **Changes of oscillatory activity in pitch processing network and related tinnitus relief induced by acoustic CR neuromodulation *FRONTIERS IN SYSTEMS NEUROSCIENCE***
Adamchic, L., Hauptmann, C., Tass, P. A.
2012; 6: 18
- **Counteracting tinnitus by acoustic coordinated reset neuromodulation *RESTORATIVE NEUROLOGY AND NEUROSCIENCE***
Tass, P. A., Adamchic, I., Freund, H., von Stackelberg, T., Hauptmann, C.
2012; 30 (2): 137–59
- **Variability of spatio-temporal patterns in non-homogeneous rings of spiking neurons *CHAOS***
Yanchuk, S., Perlikowski, P., Popovych, O. V., Tass, P. A.
2011; 21 (4): 047511
- **Delay- and Coupling-Induced Firing Patterns in Oscillatory Neural Loops *PHYSICAL REVIEW LETTERS***
Popovych, O. V., Yanchuk, S., Tass, P. A.
2011; 107 (22): 228102
- **Desynchronizing anti-resonance effect of m: n ON-OFF coordinated reset stimulation *JOURNAL OF NEURAL ENGINEERING***
Lysyansky, B., Popovych, O. V., Tass, P. A.
2011; 8 (3): 036019
- **Macroscopic entrainment of periodically forced oscillatory ensembles *PROGRESS IN BIOPHYSICS & MOLECULAR BIOLOGY***
Popovych, O. V., Tass, P. A.
2011; 105 (1-2): 98–108
- **Multi-frequency activation of neuronal networks by coordinated reset stimulation *INTERFACE FOCUS***
Lysyansky, B., Popovych, O. V., Tass, P. A.
2011; 1 (1): 75–85

- **The Translational Value of the MPTP Non-Human Primate Model of Parkinsonism for Deep Brain Stimulation Research**
Tass, P. A., Qin, L., Hauptmann, C., Dovero, S., Bezard, E., Boraud, T., Meissner, W. G., IEEE
IEEE.2011: 663–66
- **Modeling of a segmented electrode for desynchronizing deep brain stimulation** *Frontiers in neuroengineering*
Buhlmann, J., Hofmann, L., Tass, P. A., Hauptmann, C.
2011; 4: 15
- **Desynchronization (computational neuroscience)** *Scholarpedia*
Popovych, O. V., Tass, P. A., Hauptmann, C.
2011; 6 (10): 1325
- **Modified pulse shapes for effective neural stimulation** *Frontiers in neuroengineering*
Hofmann, L., Ebert, M., Tass, P. A., Hauptmann, C., et al
2011; 4: 9
- **Chimera states induced by spatially modulated delayed feedback** *PHYSICAL REVIEW E*
Omel'chenko, O. E., Maistrenko, Y. L., Tass, P. A.
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- **Phase-locking swallows in coupled oscillators with delayed feedback** *PHYSICAL REVIEW E*
Popovych, O. V., Krachkovskiy, V., Tass, P. A.
2010; 82 (4): 046203
- **Restoration of segregated, physiological neuronal connectivity by desynchronizing stimulation** *JOURNAL OF NEURAL ENGINEERING*
Hauptmann, C., Tass, P. A.
2010; 7 (5): 056008
- **Periodic patterns in a ring of delay-coupled oscillators** *PHYSICAL REVIEW E*
Perlikowski, P., Yanchuk, S., Popovych, O. V., Tass, P. A.
2010; 82 (3): 036208
- **Data-driven approach to the estimation of connectivity and time delays in the coupling of interacting neuronal subsystems** *JOURNAL OF NEUROSCIENCE METHODS*
Silchenko, A. N., Adamchic, I., Pawelczyk, N., Hauptmann, C., Maarouf, M., Sturm, V., Tass, P. A.
2010; 191 (1): 32–44
- **Synchronization control of interacting oscillatory ensembles by mixed nonlinear delayed feedback** *PHYSICAL REVIEW E*
Popovych, O. V., Tass, P. A.
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- **Changes in Apraxia After Deep Brain Stimulation of the Nucleus Basalis Meynert in a Patient With Parkinson Dementia Syndrome** *MOVEMENT DISORDERS*
Barnikol, T. T., Pawelczyk, N. A., Barnikol, U. B., Kuhn, J., Lenartz, D., Sturm, V., Tass, P. A., Freund, H.
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- **STDP in oscillatory recurrent networks: theoretical conditions for desynchronization and applications to deep brain stimulation** *FRONTIERS IN COMPUTATIONAL NEUROSCIENCE*
Pfister, J., Tass, P. A.
2010; 4
- **The causal relationship between subcortical local field potential oscillations and Parkinsonian resting tremor** *JOURNAL OF NEURAL ENGINEERING*
Tass, P., Smirnov, D., Karavaev, A., Barnikol, U., Barnikol, T., Adamchic, I., Hauptmann, C., Pawelczyk, N., Maarouf, M., Sturm, V., Freund, H., Bezruchko, B.
2010; 7 (1): 16009
- **External trial deep brain stimulation device for the application of desynchronizing stimulation techniques** *JOURNAL OF NEURAL ENGINEERING*
Hauptmann, C., Roulet, J., Niederhauser, J. J., Doell, W., Kirlangic, M. E., Lysyansky, B., Krachkovskiy, V., Bhatti, M. A., Barnikol, U. B., Sasse, L., Buehrle, C. P., Speckmann, E., Goetz, et al
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- **Long-lasting desynchronization in rat hippocampal slice induced by coordinated reset stimulation** *PHYSICAL REVIEW E*
Tass, P. A., Silchenko, A. N., Hauptmann, C., Barnikol, U. B., Speckmann, E.
2009; 80 (1): 011902
- **Cumulative and after-effects of short and weak coordinated reset stimulation: a modeling study** *JOURNAL OF NEURAL ENGINEERING*
Hauptmann, C., Tass, P. A.
2009; 6 (1): 016004
- **Anti-kindling achieved by stimulation targeting slow synaptic dynamics** *RESTORATIVE NEUROLOGY AND NEUROSCIENCE*
Tass, P. A., Hauptmann, C.
2009; 27 (6): 589–609
- **Tremor entrainment by patterned low-frequency stimulation** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
Barnikol, U. B., Popovych, O. V., Hauptmann, C., Sturm, V., Freund, H., Tass, P. A.
2008; 366 (1880): 3545–73
- **Theme issue 'biomedical applications of systems biology and biological physics' - Preface** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
Mosekilde, E., Tass, P. A.
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- **Coexistence of numerous synchronized and desynchronized states in a model of two phase oscillators coupled with delay** *INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS*
Lysyansky, B., Maistrenko, Y. L., Tass, P. A.
2008; 18 (6): 1791–1800
- **Collective dynamics of globally coupled phase oscillators under multisite delayed feedback stimulation** *PHYSICA D-NONLINEAR PHENOMENA*
Omel'chenko, O. E., Hauptmann, C., Maistrenko, Y. L., Tass, P. A.
2008; 237 (3): 365–84
- **Modeling nonlinear oscillatory systems and diagnostics of coupling between them using chaotic time series analysis: applications in neurophysiology**
Bezruchko, B. P., Ponomarenko, V. I., Prokhorov, M. D., Smirnov, D. A., Tass, P. A.
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- **Chimera states: The natural link between coherence and incoherence** *PHYSICAL REVIEW LETTERS*
Omel'chenko, O. E., Maistrenko, Y. L., Tass, P. A.
2008; 100 (4): 044105
- **Computational modeling of paroxysmal depolarization shifts in neurons induced by the glutamate release from astrocytes** *BIOLOGICAL CYBERNETICS*
Silchenko, A. N., Tass, P. A.
2008; 98 (1): 61–74
- **The generation of Parkinsonian tremor as revealed by directional coupling analysis** *EPL*
Smirnov, D. A., Barnikol, U. B., Barnikol, T. T., Bezruchko, B. P., Hauptmann, C., Buehrle, C., Maarouf, M., Sturm, V., Freund, H. J., Tass, P. A.
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- **Impact of Nonlinear Delayed Feedback on Synchronized Oscillators** *JOURNAL OF BIOLOGICAL PHYSICS*
Popovych, O. V., Hauptmann, C., Tass, P. A.
2008; 34 (3-4): 367–79
- **Control of spatially patterned synchrony with multisite delayed feedback** *PHYSICAL REVIEW E*
Hauptmann, C., Omel'chenko, O., Popovych, O. V., Maistrenko, Y., Tass, P. A.
2007; 76 (6): 066209
- **Timing of V1/V2 and V5+ activations during coherent motion of dots: An MEG study** *NEUROIMAGE*
Prieto, E., Barnikol, U. B., Soler, E., Dolan, K., Hesselmann, G., Mohlberg, H., Amunts, K., Zilles, K., Niedeggen, M., Tass, P. A.
2007; 37 (4): 1384–95
- **Desynchronizing the abnormally synchronized neural activity in the subthalamic nucleus: a modeling study** *EXPERT REVIEW OF MEDICAL DEVICES*

- Hauptmann, C., Popovych, O., Tass, P. A.
2007; 4 (5): 633–50
- **Response clustering in transient stochastic synchronization and desynchronization of coupled neuronal bursters** *PHYSICAL REVIEW E*
Neiman, A. B., Russell, D. F., Yakusheva, T. A., DiLullo, A., Tass, P. A.
2007; 76 (2): 021908
 - **Twofold impact of delayed feedback on coupled oscillators** *INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS*
Popovych, O. V., Krachkovskiy, V., Tass, P. A.
2007; 17 (7): 2517–30
 - **Demand-controlled desynchronization of oscillatory networks by means of a multisite delayed feedback stimulation** *COMPUTING AND VISUALIZATION IN SCIENCE*
Hauptmann, C., Popovych, O., Tass, P. A.
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 - **Multistability in the Kuramoto model with synaptic plasticity** *PHYSICAL REVIEW E*
Maistrenko, Y. L., Lysyansky, B., Hauptmann, C., Burylko, O., Tass, P. A.
2007; 75 (6): 066207
 - **Therapeutic rewiring by means of desynchronizing brain stimulation**
Hauptmann, C., Tass, P. A.
ELSEVIER SCI LTD.2007: 173–81
 - **Subthalamic-thalamic DBS in a case with spinocerebellar ataxia type 2 and severe tremor - A unusual clinical benefit** *MOVEMENT DISORDERS*
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2007; 22 (5): 732–35
 - **swLORETA: a novel approach to robust source localization and synchronization tomography** *PHYSICS IN MEDICINE AND BIOLOGY*
Palmero-Soler, E., Dolan, K., Hadamschek, V., Tass, P. A.
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