Stanford

Helen Bronte-Stewart, MD, MS

John E. Cahill Family Professor, Professor of Neurology (Adult Neurology) and, by courtesy, of Neurosurgery

Neurology & Neurological Sciences

CLINICAL OFFICE (PRIMARY)

- **Stanford Neuroscience Health Center**

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Bio

BIO

Dr. Helen Bronte-Stewart is the John E Cahill Family Professor in the department of Neurology and Neurological Sciences. She is a neurologist, neurophysiologist and movement disorders specialist, who has used her training in mathematics and physics, bioengineering, neurology, movement disorders, and single unit electrophysiology in primates to develop a rigorous translational program in motor control research in human subjects with movement disorders. Dr. Bronte-Stewart is the Director of the Human Motor Control and Neuromodulation Laboratory, where she has developed computerized, quantitative measurements of motor behavior, which are being implemented in a wide range of Movement Disorders. She is also the Co-Director of the Stanford Balance Center, Her research investigates the brain's contribution to abnormal movement in human subjects, using synchronous brain recordings and quantitative kinematics, and how these are modulated with different frequencies and patterns of neurostimulation. Dr. Bronte-Stewart's team was the first in the United States to implant a sensing neurostimulator, from which they can record brain signals directly, and use the patient's own neural activity to drive the first closed loop neurostimulation studies in Parkinson's disease. This work has led to her team receiving a BRAIN Initiative grant to perform the first closed loop deep brain stimulation studies for gait impairment and freezing of gait in Parkinson's disease. She is the Global Lead Investigator for the first pivotal international multicenter trial of adaptive DBS in Parkinson's disease – the ADAPT-PD trial.

CLINICAL FOCUS

- movement disorders
- Clinical Neurophysiology

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Neurology & Neurological Sciences
- Professor - University Medical Line (By courtesy), Neurosurgery
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Director, Stanford Movement Disorders Center, (1999- present)
- Division Chief, Movement Disorders division, Department of Neurology and Neurological Sciences, (1999- present)
- Co-director, Stanford Balance Center, (2010- present)

PROFESSIONAL EDUCATION

- Fellowship: UCSF Medical Center (1992) CA
- Medical Education: Perelman School of Medicine University of Pennsylvania (1984) PA
- Residency: Hospital of the University of Pennsylvania (1988) PA
- Internship: Hospital of the University of Pennsylvania (1985) PA
- Board Certification: Neurology, American Board of Psychiatry and Neurology (1991)
- BA, University of York, England , Mathematics and physics
- MSE, University of Pennsylvania , Bioengineering
- MD, University of Pennsylvania , Medicine

LINKS

- Get a Second Opinion: https://stanfordhealthcare.org/second-opinion/overview.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focus is human motor control and brain pathophysiology in movement disorders. Our overall goal is to understand the role of the basal ganglia electrical activity in the pathogenesis of movement disorders. We have developed novel computerized technology to measure fine, limb and postural movement. With these we are measuring local field potentials in basal ganglia nuclei in patients with Parkinson's disease and dystonian and correlating brain signalling with motor behavior.

CLINICAL TRIALS

- Bilateral Closed Loop Deep Brain Stimulation for Freezing of Gait Using Neural and Kinematic Feedback, Recruiting
- Adaptive Closed Loop Neuromodulation and Neural Signatures of Parkinson's Disease, Not Recruiting
- Effects of Deep Brain Stimulation (DBS) Frequency on Neural Synchrony, Not Recruiting
- Neural Signatures of Parkinson's Disease, Not Recruiting

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Ray Choi, Chuyi Cui, Gang Seo

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)
- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **Quantitative DigitoGraphy: a Comprehensive Real-Time Remote Monitoring System for Parkinson's Disease.** *Research square*
  Hoffman, S. L., Schmiedmayer, P., Gala, A. S., Wilkins, K. B., Parisi, L., Karjagi, S., Negi, A. S., Revlock, S., Coriz, C., Revlock, J., Ravi, V., Bronte-Stewart, H.
  2024

- **Proceedings of the 11th Annual Deep Brain Stimulation Think Tank: pushing the forefront of neuromodulation with functional network mapping, biomarkers for adaptive DBS, bioethical dilemmas, AI-guided neuromodulation, and translational advancements.** *Frontiers in human neuroscience*
  Johnson, K. A., Dosenbach, N. U., Gordon, E. M., Welle, C. G., Wilkins, K. B., Bronte-Stewart, H. M., Voon, V., Morishita, T., Sakai, Y., Merner, A. R., Lazaro-Munoz, G., Williamson, T., Horn, et al
  2024; 18: 1320806

- **Thalamic deep brain stimulation in traumatic brain injury: a phase 1, randomized feasibility study.** *Nature medicine*
  Schiff, N. D., Giacino, J. T., Butson, C. R., Choi, E. Y., Baker, J. L., O'Sullivan, K. P., Janson, A. P., Bergin, M., Bronte-Stewart, H. M., Chua, J., DeGeorge, L., Dikmen, S., Fogarty, et al
  2023

- **The digital signature of emergent tremor in Parkinson's disease.** *Research square*
  Bronte-Stewart, H., Gala, A., Wilkins, K., Pettruci, M., Kehnemouyi, Y., Velisar, A., Trager, M.
  2023

- **The Effect of Deep Brain Stimulation on the Sequence Effect in Speech in Parkinson's Disease**
  Je, G., Wilkins, K. B., Melbourne, J. A., Bronte-Stewart, H. M.
  WILEY.2023: S185

- **An Individualized Tractography Pipeline for the Nucleus Basalis of Meynert Lateral Tract.** *medRxiv : the preprint server for health sciences*
  Crockett, R. A., Wilkins, K. B., Zeineh, M. M., McNab, J. A., Henderson, J. M., Buch, V. P., Brontë-Stewart, H. M.
  2023

- **Transcutaneous Afferent Patterned Stimulation for Essential Tremor: Real-World Evidence with Long Term Follow-Up.** *Tremor and other hyperkinetic movements (New York, N.Y.)*
  Lu, C., Khosla, D., Kent, A., Bronte-Stewart, H. M., Rosenbluth, K. H.
  2023; 13: 29

- **No laughing white matter: Reduced integrity of the cortical cholinergic pathways in Parkinson's disease-related cognitive impairment.** *Neurobiology of disease*
  Crockett, R. A., Wilkins, K. B., Aditham, S., Brontë-Stewart, H. M.
  2023: 106243

- **Kinematic adaptive deep brain stimulation for gait impairment and freezing of gait in Parkinson's disease.** *Brain stimulation*
  Melbourne, J. A., Kehnemouyi, Y. M., O'Day, J. J., Wilkins, K. B., Gala, A. S., Petrucci, M. N., Lambert, E. F., Dorris, H., Diep, C., Herron, J. A., Bronte-Stewart, H. M.
  2023

- **Hope vs. Hype: Closed loop technology will provide more meaningful improvement vs. directional leads in deep brain stimulation.** *Parkinsonism & related disorders*
  Bronte-Stewart, H., Merola, A.
  2023: 105452

- **No Laughing White Matter: Cortical Cholinergic Pathways and Cognitive Decline in Parkinson's Disease.** *medRxiv : the preprint server for health sciences*
  Crockett, R. A., Wilkins, K. B., Aditham, S., Brontë-Stewart, H. M.
  2023

- **The Sequence Effect Worsens Over Time in Parkinson's Disease and Responds to Open and Closed-Loop Subthalamic Nucleus Deep Brain Stimulation.** *Journal of Parkinson's disease*
  Kehnemouyi, Y. M., Petrucci, M. N., Wilkins, K. B., Melbourne, J. A., Bronte-Stewart, H. M.
  2023

- **Adaptive DBS Algorithm for Personalized Therapy in Parkinson's Disease: ADAPT-PD clinical trial methodology and early data**
  Bronte-Stewart, H., Beudel, M., Ostrem, J. L., Fasano, A., Almeida, L., Hassell, T., Moro, E., Gostkowski, M., Mitchell, K. T., Hainque, E., Sarangmat, N., Stanslaski, S., Tonder, et al
  LIPPINCOTT WILLIAMS & WILKINS.2023

- **Episodic memory deficit in HIV infection: common phenotype with Parkinson's disease, different neural substrates.** *Brain structure & function*
  Fama, R., Müller-Oehring, E. M., Levine, T. F., Sullivan, E. V., Sassoon, S. A., Asok, P., Brontë-Stewart, H. M., Poston, K. L., Pohl, K. M., Pfefferbaum, A., Schulte, T.
  2023

- **Bradykinesia and its progression are related to inter-hemispheric beta coherence.** *Annals of neurology*
  Wilkins, K. B., Kehnemouyi, Y. M., Petrucci, M. N., Anderson, R. W., Parker, J. E., Trager, M. H., Neuville, R. S., Koop, M. M., Velisar, A., Blumenfeld, Z., Quinn, E. J., Bronte-Stewart, H. M.
  2023

- **Unraveling the complexities of programming neural adaptive deep brain stimulation in Parkinson's disease.** *Frontiers in human neuroscience*
  Wilkins, K. B., Melbourne, J. A., Akella, P., Bronte-Stewart, H. M.
  2023; 17: 1310393

- **Quantitative Digitography Measures Motor Symptoms and Disease Progression in Parkinson's Disease.** *Journal of Parkinson's disease*
  Wilkins, K. B., Petrucci, M. N., Kehnemouyi, Y., Velisar, A., Han, K., Orthlieb, G., Trager, M. H., O'Day, J. J., Aditham, S., Bronte-Stewart, H.
  2022

- **Assessing inertial measurement unit locations for freezing of gait detection and patient preference.** *Journal of neuroengineering and rehabilitation*
  O'Day, J., Lee, M., Seagers, K., Hoffman, S., Jih-Schiff, A., Kidzinski, L., Delp, S., Bronte-Stewart, H.
  2022; 19 (1): 20

- **Concurrent stimulation and sensing in bi-directional brain interfaces: a multi-site translational experience.** *Journal of neural engineering*
  Ansó, J., Benjaber, M., Parks, B., Parker, S., Oehrn, C. R., Petrucci, M., Gilron, R., Little, S., Wilt, R., Bronte-Stewart, H., Gunduz, A., Borton, D., Starr, et al
  2022

- **Proceedings of the 10th annual deep brain stimulation think tank: Advances in cutting edge technologies, artificial intelligence, neuromodulation, neuroethics, interventional psychiatry, and women in neuromodulation.** *Frontiers in human neuroscience*
  Wong, J. K., Mayberg, H. S., Wang, D. D., Richardson, R. M., Halpern, C. H., Krinke, L., Arlotti, M., Rossi, L., Priori, A., Marceglia, S., Gilron, R., Cavanagh, J. F., Judy, et al
  2022; 16: 1084782

- **Neurofunctional characteristics of executive control in older people with HIV infection: a comparison with Parkinson's disease.** *Brain imaging and behavior*
  Müller-Oehring, E. M., Hong, J. Y., Poston, K. L., Brontë-Stewart, H. M., Sullivan, E. V., McGlynn, L., Schulte, T.
  2022

- **Proceedings of the Ninth Annual Deep Brain Stimulation Think Tank: Advances in Cutting Edge Technologies, Artificial Intelligence, Neuromodulation, Neuroethics, Pain, Interventional Psychiatry, Epilepsy, and Traumatic Brain Injury.** *Frontiers in human neuroscience*
  Wong, J. K., Deuschl, G., Wolke, R., Bergman, H., Muthuraman, M., Groppa, S., Sheth, S. A., Bronte-Stewart, H. M., Wilkins, K. B., Petrucci, M. N., Lambert, E., Kehnemouyi, Y., Starr, et al
  2022; 16: 813387

- **Lack of progression of beta dynamics after long-term subthalamic neurostimulation.** *Annals of clinical and translational neurology*
  Anderson, R. W., Wilkins, K. B., Parker, J. E., Petrucci, M. N., Kehnemouyi, Y., Neuville, R. S., Cassini, D., Trager, M. H., Koop, M. M., Velisar, A., Blumenfeld, Z., Quinn, E. J., Henderson, et al
  2021

- **The effects of mood and cognition on daily functioning and quality of life in older people living with HIV and people with Parkinson's disease.** *Neuropsychology*
  Patel, S. S., Muller-Oehring, E. M., DeVaughn, S., Fama, R., Bronte-Stewart, H. M., Poston, K. L., Schulte, T.
  2021

- **Ramp Rate Evaluation and Configuration for Safe and Tolerable Closed-Loop Deep Brain Stimulation.** *International IEEE/EMBS Conference on Neural Engineering : [proceedings]. International IEEE EMBS Conference on Neural Engineering*
  Petrucci, M. N., Wilkins, K. B., Orthlieb, G. C., Kehnemouyi, Y. M., O'Day, J. J., Herron, J. A., Bronte-Stewart, H. M.
  2021; 2021: 959-962

- **Gait Parameters Measured from Wearable Sensors Reliably Detect Freezing of Gait in a Stepping in Place Task.** *Sensors (Basel, Switzerland)*
  Diep, C., O'Day, J., Kehnemouyi, Y., Burnett, G., Bronte-Stewart, H.
  2021; 21 (8)
- **Differential Effects of Pathological Beta Burst Dynamics Between Parkinson's Disease Phenotypes Across Different Movements.** *Frontiers in neuroscience*
  Neuville, R. S., Petrucci, M. N., Wilkins, K. B., Anderson, R. W., Hoffman, S. L., Parker, J. E., Velisar, A., Bronte-Stewart, H. M.
  2021; 15: 733203
- **Ramp Rate Evaluation and Configuration for Safe and Tolerable Closed-Loop Deep Brain Stimulation**
  Petrucci, M. N., Wilkins, K. B., Orthlieb, G. C., Kehnemouyi, Y. M., O'Day, J. J., Herron, J. A., Bronte-Stewart, H. M., IEEE
  IEEE.2021: 959-962
- **A validated measure of rigidity in Parkinson's disease using alternating finger tapping on an engineered keyboard.** *Parkinsonism & related disorders*
  Trager, M. H., Wilkins, K. B., Koop, M. M., Bronte-Stewart, H.
  2020; 81: 161–64
- **Perspective: Evolution of Control Variables and Policies for Closed-Loop Deep Brain Stimulation for Parkinson's Disease Using Bidirectional Deep-Brain-Computer Interfaces** *FRONTIERS IN HUMAN NEUROSCIENCE*
  Bronte-Stewart, H. M., Petrucci, M. N., O'Day, J. J., Afzal, M., Parker, J. E., Kehnemouyi, Y. M., Wilkins, K. B., Orthlieb, G. C., Hoffman, S. L.
  2020; 14
- **Perspective: Evolution of Control Variables and Policies for Closed-Loop Deep Brain Stimulation for Parkinson's Disease Using Bidirectional Deep-Brain-Computer Interfaces.** *Frontiers in human neuroscience*
  Bronte-Stewart, H. M., Petrucci, M. N., O'Day, J. J., Afzal, M. F., Parker, J. E., Kehnemouyi, Y. M., Wilkins, K. B., Orthlieb, G. C., Hoffman, S. L.
  2020; 14: 353
- **A Closed-loop Deep Brain Stimulation Approach for Mitigating Burst Durations in People with Parkinson's Disease.** *Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference*
  Petrucci, M. N., Anderson, R. W., O'Day, J. J., Kehnemouyi, Y. M., Herron, J. A., Bronte-Stewart, H. M.
  2020; 2020: 3617–20
- **Demonstration of Kinematic-Based Closed-loop Deep Brain Stimulation for Mitigating Freezing of Gait in People with Parkinson's Disease.** *Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference*
  O'Day, J. J., Kehnemouyi, Y. M., Petrucci, M. N., Anderson, R. W., Herron, J. A., Bronte-Stewart, H. M.
  2020; 2020: 3612–16
- **Alterations of Brain Signal Oscillations in Older Individuals with HIV Infection and Parkinson's Disease.** *Journal of neuroimmune pharmacology : the official journal of the Society on NeuroImmune Pharmacology*
  Muller-Oehring, E. M., Hong, J., Hughes, R. L., Kwon, D., Bronte-Stewart, H. M., Poston, K. L., Schulte, T.
  2020
- **Quantitative Digitography Measures Fine Motor Disturbances in Chronically Treated HIV Similar to Parkinson's Disease** *Frontier in Aging Neuroscience*
  Prabhakar, V., Martin, T., Müller-Oehring, E. M., Goodcase, R., Schulte, T., Poston, K. L., Brontë-Stewart, H. M.
  2020: 539598
- **Data-Driven Prediction of Freezing of Gait Events From Stepping Data.** *Frontiers in medical technology*
  Parakkal Unni, M., Menon, P. P., Livi, L., Wilson, M. R., Young, W. R., Bronte-Stewart, H. M., Tsaneva-Atanasova, K.
  2020; 2: 581264
- **Demonstration of Kinematic-Based Closed-loop Deep Brain Stimulation for Mitigating Freezing of Gait in People with Parkinson's Disease**
  O'Day, J. J., Kehnemouyi, Y. M., Petrucci, M. N., Anderson, R. W., Herron, J. A., Bronte-Stewart, H. M., IEEE
  IEEE.2020: 3612–16
- **A Closed-loop Deep Brain Stimulation Approach for Mitigating Burst Durations in People with Parkinson's Disease**
  Petrucci, M. N., Anderson, R. W., O'Day, J. J., Kehnemouyi, Y. M., Herron, J. A., Bronte-Stewart, H. M., IEEE
  IEEE.2020: 3617–20
- **The turning and barrier course reveals gait parameters for detecting freezing of gait and measuring the efficacy of deep brain stimulation.** *PloS one*
  O'Day, J. n., Syrkin-Nikolau, J. n., Anidi, C. n., Kidzinski, L. n., Delp, S. n., Bronte-Stewart, H. n.

2020; 15 (4): e0231984

- **Gait variability is linked to the atrophy of the Nucleus Basalis of Meynert and is resistant to STN DBS in Parkinson's disease.** *Neurobiology of disease*
  Wilkins, K. B., Parker, J. E., Bronte-Stewart, H. M.
  2020: 105134

- **Modulation of beta bursts in subthalamic sensorimotor circuits predicts improvement in bradykinesia.** *Brain : a journal of neurology*
  Kehnemouyi, Y. M., Wilkins, K. B., Anidi, C. M., Anderson, R. W., Afzal, M. F., Bronte-Stewart, H. M.
  2020

- **Neural Closed loop deep brain stimulation for freezing of Gait.** *Brain stimulation*
  Petrucci, M. N., Neuville, R. S., Afzal, M. F., Velisar, A. n., Anidi, C. M., Anderson, R. W., Parker, J. E., O'Day, J. J., Wilkins, K. B., Bronte-Stewart, H. M.
  2020

- **Safety of Plasma Infusions in Parkinson's Disease.** *Movement disorders : official journal of the Movement Disorder Society*
  Parker, J. E., Martinez, A. n., Deutsch, G. K., Prabhakar, V. n., Lising, M. n., Kapphahn, K. I., Anidi, C. M., Neuville, R. n., Coburn, M. n., Shah, N. n., Bronte-Stewart, H. M.
  2020

- **Cognitive and motor deficits in older adults with HIV infection: Comparison with normal ageing and Parkinson's disease.** *Journal of neuropsychology*
  Müller-Oehring, E. M., Fama, R. n., Levine, T. F., Hardcastle, C. n., Goodcase, R. n., Martin, T. n., Prabhakar, V. n., Brontë-Stewart, H. M., Poston, K. L., Sullivan, E. V., Schulte, T. n.
  2020

- **Proceedings of the Sixth Deep Brain Stimulation Think Tank Modulation of Brain Networks and Application of Advanced Neuroimaging, Neurophysiology, and Optogenetics.** *Frontiers in neuroscience*
  Ramirez-Zamora, A., Giordano, J., Boyden, E. S., Gradinaru, V., Gunduz, A., Starr, P. A., Sheth, S. A., McIntyre, C. C., Fox, M. D., Vitek, J., Vedam-Mai, V., Akbar, U., Almeida, et al
  2019; 13: 936

- **Proceedings of the Sixth Deep Brain Stimulation Think Tank Modulation of Brain Networks and Application of Advanced Neuroimaging, Neurophysiology, and Optogenetics** *FRONTIERS IN NEUROSCIENCE*
  Ramirez-Zamora, A., Giordano, J., Boyden, E. S., Gradinaru, V., Gunduz, A., Starr, P. A., Sheth, S. A., McIntyre, C. C., Fox, M. D., Vitek, J., Vedam-Mai, V., Akbar, U., Almeida, et al
  2019; 13

- **Reply to letter to the editor "Adaptive DBS in Parkinson's disease: Headlines, perspectives and challenges".** *Brain stimulation*
  Velisar, A., Bronte-Stewart, H.
  2019

- **Establishing a framework for neuropathological correlates and glymphatic system functioning in Parkinson's disease.** *Neuroscience and biobehavioral reviews*
  Sundaram, S., Hughes, R. L., Peterson, E., Muller-Oehring, E. M., Bronte-Stewart, H. M., Poston, K. L., Faerman, A., Bhowmick, C., Schulte, T.
  2019

- **Dual threshold neural closed loop deep brain stimulation in Parkinson disease patients.** *Brain stimulation*
  Velisar, A., Syrkin-Nikolau, J., Blumenfeld, Z., Trager, M. H., Afzal, M. F., Prabhakar, V., Bronte-Stewart, H.
  2019

- **Information Processing Deficit in Older Adults With HIV Infection: A Comparison With Parkinson's Disease** *NEUROPSYCHOLOGY*
  Sundaram, S., Mueller-Oehring, E. M., Fama, R., Bronte-Stewart, H. M., Poston, K. L., Goodcase, R., Martin, T., Prabhakar, V., Karpf, J., Schulte, T.
  2019; 33 (2): 157–68

- **Neuromodulation targets pathological not physiological beta bursts during gait in Parkinson's disease** *NEUROBIOLOGY OF DISEASE*
  Anidi, C., O'Day, J. J., Anderson, R. W., Afzal, M., Syrkin-Nikolau, J., Velisar, A., Bronte-Stewart, H. M.
  2018; 120: 107–17

- **Information processing deficit in older adults with HIV infection: A comparison with Parkinson's disease.** *Neuropsychology*
  Sundaram, S., Muller-Oehring, E. M., Fama, R., Bronte-Stewart, H. M., Poston, K. L., Goodcase, R., Martin, T., Prabhakar, V., Karpf, J., Schulte, T.
  2018

- **Biophysical basis of subthalamic local field potentials recorded from deep brain stimulation electrodes** *JOURNAL OF NEUROPHYSIOLOGY*
  Maling, N., Lempka, S. F., Blumenfeld, Z., Bronte-Stewart, H., McIntyre, C. C.
  2018; 120 (4): 1932–44

- **Neuromodulation targets pathological not physiological beta bursts during gait in Parkinson's disease.** *Neurobiology of disease*
  Anidi, C. M., O'Day, J. J., Anderson, R. W., Afzal, M. F., Syrkin-Nikolau, J., Velisar, A., Bronte-Stewart, H. M.
  2018

- **Motor function impairment in chronic HIV is similar but less severe to that seen in Parkinson's disease**
  Bronte-Stewart, H., Prabhakar, V., Martin, T., Trager, M., Velisar, A., Koop, M., Muller-Oehring, E., Poston, K., Schulte, T.
  LIPPINCOTT WILLIAMS & WILKINS.2018

- **Sixty hertz subthalamic deep brain stimulation improves freezing of gait with less attenuation of beta band power than 140Hz stimulation**
  Anidi, C., O'Day, J., Afzal, M., Syrkin-Nikolau, J., Velisar, A., Bronte-Stewart, H.
  LIPPINCOTT WILLIAMS & WILKINS.2018

- **Efficacy of Subthalamic Neural Closed-loop Deep Brain Stimulation for Bradykinesia in Parkinson's Disease**
  Bronte-Stewart, H., Afzal, M., Velisar, A., Anidi, C.
  LIPPINCOTT WILLIAMS & WILKINS.2018

- **Evolving Applications, Technological Challenges and Future Opportunities in Neuromodulation: Proceedings of the Fifth Annual Deep Brain Stimulation Think Tank** *FRONTIERS IN NEUROSCIENCE*
  Ramirez-Zamora, A., Giordano, J. J., Gunduz, A., Brown, P., Sanchez, J. C., Foote, K. D., Almeida, L., Starr, P. A., Bronte-Stewart, H. M., Hu, W., McIntyre, C., Goodman, W., Kumsa, et al
  2018; 11: 734

- **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

- **Closing the loop on impulsivity via nucleus accumbens delta-band activity in mice and man.** *Proceedings of the National Academy of Sciences of the United States of America*
  Wu, H. n., Miller, K. J., Blumenfeld, Z. n., Williams, N. R., Ravikumar, V. K., Lee, K. E., Kakusa, B. n., Sacchet, M. D., Wintermark, M. n., Christoffel, D. J., Rutt, B. K., Bronte-Stewart, H. n., Knutson, et al
  2018; 115 (1): 192–97

- **Subthalamic neural entropy is a feature of freezing of gait in freely moving people with Parkinson's disease** *NEUROBIOLOGY OF DISEASE*
  Syrkin-Nikolau, J., Koop, M., Prieto, T., Anidi, C., Afzal, M., Velisar, A., Blumenfeld, Z., Martin, T., Trager, M., Bronte-Stewart, H.
  2017; 108: 288–97

- **Sixty-hertz stimulation improves bradykinesia and amplifies subthalamic low-frequency oscillations.** *Movement disorders*
  Blumenfeld, Z., Koop, M. M., Prieto, T. E., Shreve, L. A., Velisar, A., Quinn, E. J., Trager, M. H., Brontë-Stewart, H.
  2017; 32 (1): 80-88

- **Model Predictive Control of Deep Brain Stimulation for Parkinsonian Tremor**
  Haddock, A., Velisar, A., Herron, J., Bronte-Stewart, H., Chizeck, H. J., IEEE
  IEEE.2017: 358–62

- **Subthalamic oscillations and phase amplitude coupling are greater in the more affected hemisphere in Parkinson's disease.** *Clinical neurophysiology*
  Shreve, L. A., Velisar, A., Malekmohammadi, M., Koop, M. M., Trager, M., Quinn, E. J., Hill, B. C., Blumenfeld, Z., Kilbane, C., Mantovani, A., Henderson, J. M., Brontë-Stewart, H.
  2017; 128 (1): 128-137

- **Subthalamic beta oscillations are attenuated after withdrawal of chronic high frequency neurostimulation in Parkinson's disease.** *Neurobiology of disease*
  Trager, M. H., Koop, M. M., Velisar, A., Blumenfeld, Z., Nikolau, J. S., Quinn, E. J., Martin, T., Bronte-Stewart, H.
  2016; 96: 22-30

- **Auditory cueing in Parkinson's patients with freezing of gait. What matters most: Action-relevance or cue-continuity?** *NEUROPSYCHOLOGIA*
  Young, W. R., Shreve, L., Quinn, E. J., Craig, C., Bronte-Stewart, H.
  2016; 87: 54-62

- **Kinematic Adaptive Deep Brain Stimulation for Resting Tremor in Parkinson's Disease.** *Movement disorders : official journal of the Movement Disorder Society*
  Malekmohammadi, M. n., Herron, J. n., Velisar, A. n., Blumenfeld, Z. n., Trager, M. H., Chizeck, H. J., Brontë-Stewart, H. n.
  2016
- **Proceedings of the Fourth Annual Deep Brain Stimulation Think Tank: A Review of Emerging Issues and Technologies.** *Frontiers in integrative neuroscience*
  Deeb, W., Giordano, J. J., Rossi, P. J., Mogilner, A. Y., Gunduz, A., Judy, J. W., Klassen, B. T., Butson, C. R., van Horne, C., Deny, D., Dougherty, D. D., Rowell, D., Gerhardt, et al
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