



Department of Psychiatry
Columbia University, College of P&S **NYS**
Psychiatric Institute

DIVISION OF BRAIN STIMULATION AND THERAPEUTIC MODULATION

JOURNAL CLUB

PAST JOURNAL CLUB PRESENTATIONS

2007 - 2008

January 17, 2007

A discussion of uses of TMS in the pediatric population, with a focus on these two papers:

Yael Cycowicz, PhD

Loo C, McFarquhar T, Walter G. Transcranial magnetic stimulation in adolescent depression. *Australas Psychiatry*. 2006 Mar;14(1):81-5. Case Report

Buchmann J, Gierow W, Weber S, Hoepfner J, Klauer T, Wittstock M, Benecke R, Haessler F, Wolters A. Modulation of transcallosally mediated motor inhibition in children with attention deficit hyperactivity disorder (ADHD) by medication with methylphenidate (MPH). *Neurosci Lett*. 2006 Sep 11;405(1-2):14-8. Epub 2006 Jul 3.

January 31, 2007

Cognitive impact of VNS for MDD

Eva-Lotta Brakemeier, Ph.D. cand.

Neuhaus AH, Luborzewski A, Rentzsch J, Brakemeier EL, Opgen-Rhein C, Gallinat J, Bajbouj M. P300 is enhanced in responders to vagus nerve stimulation for treatment of major depressive disorder. *J Affect Disord*. 2006 Nov 13; [Epub ahead of print]

February 28, 2007

Special joint Journal Club meeting with Prof. Rene Hen's neurobiology class.

DIFFERENT LOCATION: 7th floor Kolb Annex conference room, 5-6pm

Please either choose to attend 4-5pm class and then joint J Club, or arrive at 5pm sharp for joint J Club (all are welcome to come at 4 if interested in hearing SHL's talk, which will be quite general). Thanks.

2 papers to be presented by Hen students:

Eranti S, Mogg A, Pluck G, Landau S, Purvis R, Brown RG, Howard R, Knapp M, Philpot M, Rabe-Hesketh S, Romeo R, Rothwell J, Edwards D, McLoughlin DM. A randomized, controlled trial with 6-month follow-up of repetitive transcranial magnetic stimulation and electroconvulsive therapy for severe depression. *Am J Psychiatry*. 2007 Jan;164(1):73-81.

Loo CK, Mitchell PB, McFarquhar TF, Malhi GS, Sachdev PS. A sham-controlled trial of the efficacy and safety of twice-daily rTMS in major depression. *Psychol Med*. 2006 Dec 19;:1-

March 14, 2007

Prefrontal TMS in normals, and mitigating pain of TMS

Janet Mindes, PhD

Sibon I, Strafella AP, Gravel P, Ko JH, Booij L, Soucy JP, Leyton M, Diksic M, Benkelfat C. Acute prefrontal cortex TMS in healthy volunteers: Effects on brain (11)C-alphaMtrp trapping. *Neuroimage*. 2006 Dec 21; [Epub ahead of print]

Borckardt JJ, Smith AR, Hütcheson K, Johnson K, Nahas Z, Anderson B, Schneider MB, Reeves ST, George MS. Reducing pain and unpleasantness during repetitive transcranial magnetic stimulation. *J ECT*. 2006 Dec;22(4):259-64.

March 28, 2007

TMS and brain plasticity

Bruce Luber, PhD

Nyffeler T, Wurtz P, Luscher HR, Hess CW, Senn W, Pflugshaupt T, von Wartburg R, Luthi M, Muri RM. Extending lifetime of plastic changes in the human brain. *Eur J Neurosci*. 2006 Nov;24(10):2961-6.

Holly Lisanby, MD

May A, Hajak G, Ganssbauer S, Steffens T, Langguth B, Kleinjung T, Eichhammer P. Structural brain alterations following 5 days of intervention: dynamic aspects of neuroplasticity. *Cereb Cortex*. 2007 Jan;17(1):205-10. Epub 2006 Feb 15.

April 11, 2007

TMS to modulate language behavior

John Ferrera, MS, PhD cand.

Mottaghy FM, Sparing R, Topper R. Enhancing picture naming with transcranial magnetic stimulation. *Behav Neurol*. 2006;17(3-4):177-86.

John Ferrera will also present on his current work and results, which relate to Mottaghy et al.

April 25, 2007

Alex Sporn, MD

Dr. Sporn will present on some combination of:

Aleman A, Sommer IE, Kahn RS. Efficacy of slow repetitive transcranial magnetic stimulation in the treatment of resistant auditory hallucinations in schizophrenia: a meta-analysis. *J Clin Psychiatry*. 2007 Mar;68(3):416-21.

Chung YC, Im ES, Cho GH, Ko MH. Second run of transcranial magnetic stimulation has no effects on persistent auditory hallucinations. *World J Biol Psychiatry*. 2007;8(1):48-50.

Fitzgerald PB, Sriharan A, Benitez J, Daskalakis ZJ, Jackson G, Kulkarni J, Egan GF. A preliminary fMRI study of the effects on cortical activation of the treatment of refractory auditory hallucinations with rTMS. *Psychiatry Res*. 2007 Mar 28; [Epub ahead of print]

May 9, 2007

TMS for epilepsy < > depression

Antonio Mantovani, MD, PhD

Fregni F, Schachter SC, Pascual-Leone A. Transcranial magnetic stimulation treatment for epilepsy: can it also improve depression and vice versa? *Epilepsy Behav*. 2005 Sep;7(2):182-9.

May 30, 2007

Impact of rTMS on cortical inhibition in normal subjects

Arielle Stanford, MD

Daskalakis ZJ, Moller B, Christensen BK, Fitzgerald PB, Gunraj C, Chen R. The effects of repetitive transcranial magnetic stimulation on cortical inhibition in healthy human subjects. *Exp Brain Res*. 2006 Oct;174(3):403-12. Epub 2006 May 9.

June 13, 2007

The effect of electric fields on neuronal function

Invited presenter: Thomas Radman, PhD cand., CCNY

Radman T, Su Y, An JH, Parra LC, Bikson M. Spike timing amplifies the effect of electric fields on neurons: implications for endogenous field effects. *J Neurosci*. 2007 Mar 14;27(11):3030-6.

June 27, 2007

DBS in movement and other neuropsychiatric disorders

David Hardesty, MD

Hardesty DE, Sackeim HA. Deep Brain Stimulation in movement and psychiatric disorders. *Biol Psychiatry*. 2007 Apr 1;61(7):831-5. Epub 2006 Nov 27.

Czernecki V, Pillon B, Houeto JL, Welter ML, Mesnage V, Agid Y, Dubois B. Does bilateral stimulation of the subthalamic nucleus aggravate apathy in Parkinson's disease? *J Neurol Neurosurg Psychiatry*. 2005 Jun;76(6):775-9.

July 11, 2007

Impact of TMS on self-other discrimination

Bruce Luber, PhD

Uddin LQ, Molnar-Szakacs I, Zaidel E, Iacoboni M. rTMS to the right inferior parietal lobule disrupts self-other discrimination. Soc Cogn Affect Neurosci. 2006;1(1):65-71.

July 25, 2007

The TMS motor battery: A review of current procedures and update

Daniel Kaplan

Papers to be discussed:

Borckardt JJ, Nahas Z, Koola J, George MS. Estimating resting motor thresholds in transcranial magnetic stimulation research and practice: a computer simulation evaluation of best methods. J ECT. 2006 Sep;22(3):169-75.

Daskalakis ZJ, Molnar GF, Christensen BK, Sailer A, Fitzgerald PB, Chen R. An automated method to determine the transcranial magnetic stimulation-induced contralateral silent period. Clin Neurophysiol. 2003 May;114(5):938-44.

Orth et al., 2003 on paired pulse – trying to get this paper

August 8, 2007 - Cancelled

August 22, 2007

Inhibitory control in autism and studying inhibitory control with fMRI, preparatory to a (believed to be) first ever TMS treatment trial for autism

Carl Fisher, Doris Duke Clinical Research Fellow

Kana RK, Keller TA, Minshew NJ, Just MA. Inhibitory control in high-functioning autism: decreased activation and underconnectivity in inhibition networks. Biol Psychiatry. 2007 Aug 1;62(3):198-206. Epub 2006 Nov 29.

Schmitz N, Rubia K, Daly E, Smith A, Williams S, Murphy DG. Neural correlates of executive function in autistic spectrum disorders. Biol Psychiatry. 2006 Jan 1;59(1):7-16. Epub 2005 Sep 2.

SPECIAL JOURNAL CLUB EVENT Wed. 8/29/07

August 29, 2007

Relevance of neurocognitive and executive function deficits in unipolar and bipolar depression

Invited presenter: Shawn M. McClintock, Ph.D., Visiting NIH Postdoctoral Research Fellow

Department of Psychiatry. Department of Clinical Sciences
University of Texas Southwestern Medical Center, Dallas, TX

Cui X, Lyness JM, Tu X, King DA, Caine ED. Does depression precede or follow executive dysfunction? Outcomes in older primary care patients. Am J Psychiatry. 2007 Aug;164(8):1221-8.

Wagner M, Rihs TA, Mosimann UP, Fisch HU, Schlaepfer TE. Repetitive transcranial magnetic stimulation of the dorsolateral prefrontal cortex affects divided attention immediately after cessation of stimulation. *J Psychiatr Res.* 2006 Jun;40(4):315-21. Epub 2005 Aug 2

September 12, 2007

CORTICAL STIMULATION TECHNOLOGIES FOR NEURAL DISORDERS: NEW ANIMAL AND CLINICAL RESEARCH ON TREATING UPPER EXTREMITY DEFICITS IN STROKE.

Invited presenter: *BRAD FOWLER, M.A., Northstar Neuroscience, Seattle, WA*

Plautz, EJ and RJ Nudo (2005) Neural plasticity and functional recovery following cortical ischemic injury. Proceedings of the 27th Annual International IEEE Engineering in Medicine and Biology Society Conference, #2329.

Teskey GC, Flynn C, Goertzen CD, Monfils MH, Young NA. Cortical stimulation improves skilled forelimb use following a focal ischemic infarct in the rat. *Neurol Res.* 2003 Dec;25(8):794-800.

SPECIAL JOURNAL CLUB EVENT Th. 9/20/07, Room 3001, new PI

September 20, 2007

BRAIN STIMULATION IN EPILEPSY: DIAGNOSTIC AND THERAPEUTIC POTENTIAL

Invited presenter: *LAWRENCE J. HIRSCH, MD, Associate Clinical Professor of Neurology, Comprehensive Epilepsy Center, Columbia University*

Boon P, Vonck K, De Herdt V, Van Dycke A, et al. Deep brain stimulation in patients with refractory temporal lobe epilepsy. *Epilepsia.* 2007 Aug;48(8):1551-60.

Cantello R, Rossi S, Varrasi C, Ulivelli M, Civardi C, Bartalini S, Vatti G, Cincotta M, Borgheresi A, Zaccara G, Quartarone A, Crupi D, Lagana A, Inghilleri M, Giallonardo AT, Berardelli A, Pacifici L, Ferreri F, Tombini M, Gilio F, Quarato P, Conte A, Manganotti P, Bongiovanni LG, Monaco F, Ferrante D, Rossini PM. Slow repetitive TMS for drug-resistant epilepsy: clinical and EEG findings of a placebo-controlled trial. *Epilepsia.* 2007 Feb;48(2):366-74.

September 26, 2007

NEURAL HIERARCHIES AND THE SELF. INVESTIGATING THE SELF USING TRANSCRANIAL MAGNETIC STIMULATION (TMS)

PROFESSOR HANS C. LOU, PHD, John F. Kennedy Institute, Glostrup, Denmark and Department of Functionally Integrative Neuroscience, Aarhus University Hospital, Aarhus, Denmark.

Dr. Lou will lead discussion of this Chapter:

Feinberg TE. Neural hierarchies and the self. Chapter 4 in *The Lost Self: Pathologies of the Brain and Identity.* Ed. TE Feinberg, JP Keenan. Oxford University Press, 2005.

October 10, 2007 ***FORTUNATO BATTAGLIA, MD, PHD,*** Medical Assistant Professor, Sophie Davis School of Bio-Medical Education, CCNY, CUNY, and Adjunct Assistant Professor, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, Columbia University.

RTMS AND SYNAPTIC PLASTICITY IN RODENTS

**** Note different room, this event only: Room 6205, new PI ****

Please read this paper (attached):

Battaglia F, Wang HY, Ghilardi MF, Gashi E, Quartarone A, Friedman E, Nixon RA. Cortical Plasticity in Alzheimer's Disease in Humans and Rodents. *Biol Psychiatry*. 2007 Jul 23; [Epub ahead of print]
[FB: In this paper I used the same techniques I used to test rTMS and plasticity in mice, in the work I will discuss.]

SPECIAL LECTURE, Room 3001

October 10, 2007 *IRIS E.C. SOMMER, MD, PHD*, Senior Researcher and Psychiatrist, Department of Psychiatry and Neuroscience Division, University Medical Center Utrecht, Utrecht, The Netherlands.

IMPROVING THE EFFICACY OF REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (RTMS) FOR AUDITORY VERBAL HALLUCINATIONS IN SCHIZOPHRENIA.

Please read these papers (attached):

Sommer IE, de Weijer AD, Daalman K, Neggers SF, Somers M, Kahn RS, Slotema CW, Blom JD, Hoek HW, Aleman A. Can fMRI-guidance improve the efficacy of rTMS treatment for auditory verbal hallucinations? *Schizophr Res*. 2007 Jul;93(1-3):406-8. Epub 2007 May 2. No abstract available.

Aleman A, Sommer IE, Kahn RS. Efficacy of slow repetitive transcranial magnetic stimulation in the treatment of resistant auditory hallucinations in schizophrenia: a meta-analysis. *J Clin Psychiatry*. 2007 Mar;68(3):416-21.

October 24, 2007 *KATHLEEN M. FRIEL, PHD*, Associate Research Scientist, Center for Neurobiology and Behavior (J. Martin lab), Columbia University

TRANSLATIONAL APPROACH TO MOTOR REHABILITATION IN CEREBRAL PALSY

Please read these papers (attached):

Friel KM, Martin JH. Bilateral activity-dependent interactions in the developing corticospinal system. *J Neurosci* 2007 October 10; [Epub ahead of print]

Martin JH, Friel KM, Salimi I, Chakrabarty S. Activity- and use-dependent plasticity of the developing corticospinal system.

Neurosci Biobehav Rev. 2007 May 17; [Epub ahead of print]

Charles JR, Wolf SL, Schneider JA, Gordon AM. Efficacy of a child-friendly form of constraint-induced movement therapy in hemiplegic cerebral palsy: a randomized control trial. *Dev Med Child Neurol* 2006 48:635-642.

SPECIAL LECTURE, Room 5001

October 26, 2007 *MARCELLO MASSIMINI, M.D., PH.D.*, Research Associate, Dept. of Psychiatry, University of Wisconsin – Madison, and Asst. Professor of Neurophysiology, University of Milan, Italy

PROBING HUMAN THALAMO-CORTICAL CIRCUITS WITH TMS/HD-EEG

SPECIAL LECTURE, Room 6601 (Board Room)

Note different room, day; lecture is on a Thursday, 1-2pm

November 8, 2007 *DINO LEVY, PH.D. CANDIDATE* (Ph.D. expected 4/08)

Lab of Dr. Abraham Zangen, Neurobiology Department, Weizmann Institute of Science, Rehovot, Israel
Postdoctoral Fellow Candidate, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, Columbia University

USING ELECTRICAL AND MAGNETIC STIMULATION IN TREATING ADDICTION

SPECIAL LECTURE, during weekly Division meeting, 2-3pm, Room 5001

Note different time from usual J Club time

November 14, 2007

HAKWAN LAU, D.PHIL., Department of Psychology, Columbia University
Manipulating consciousness with Transcranial Magnetic Stimulation (TMS)

This paper might be useful to read ahead; see back of attached flier for other of Dr. Lau's papers.

Lau HC, Passingham RE. Unconscious activation of the cognitive control system in the human prefrontal cortex. *J Neurosci*. 2007 May 23;27(21):5805-11.

November 28, 2007 **JULIAN F. THAYER, PHD**, Professor of Psychology, The Ohio State University; formerly at NIH/NIA

MEASUREMENT OF VAGAL TONE: A MODEL OF NEUROVISCERAL INTEGRATION AND ITS RELEVANCE TO NEUROPSYCHIATRY RESEARCH AND TREATMENT

Attendees may wish to read the following papers:

Thayer JF, Brosschot JF: Psychosomatics and psychopathology: Looking up and down from the brain. *Psychoneuroendocrinology* 2005; 30:1050-1058. [a pdf of this paper is attached]

Thayer JF, Lane RD: A model of neurovisceral integration in emotion regulation and dysregulation. *Journal of Affective Disorders* 2000;61:201-216. [a pdf of this paper is attached]

December 12, 2007 - CANCELLED

December 26, 2007 – XMAS HOLIDAY, NO MEETING

January 9, 2008

PETER BULOW, MD, Postdoctoral Fellow, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, Columbia University

CRANIAL ELECTROTHERAPY STIMULATION (CES): WHAT IS IT, WHAT CAN IT DO?

Supporting studies can be found on this website: <http://www.fisherwallace.com/studies>

Attendees might wish to read the following paper:

Klawansky S, Yeung A, Berkey C, Shah N, Phan H, Chalmers TC. (Dept. Health Policy & Mgmt, Harvard School of Public Health) Meta-analysis of randomized controlled trials of cranial electrostimulation. Efficacy in treating selected psychological and physiological conditions. *J Nerv Ment Dis*. 1995 Jul;183(7):478-84.

Available at: http://www.fisherwallace.com/uploads/Meta-Analysis_of_cranial_electrical_stimulation_trials.pdf

Monday January 14, 2008, 12-1pm, Room 6601 (Board Room)

SPECIAL JOINT JOURNAL CLUB MEETING – BRAIN STIMULATION + PARSEY LAB

Note different day, time, room from usual Brain Stim J Club time

SARAH H. LISANBY, MD, DIRECTOR, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, New York State Psychiatric Institute

Dr. Lisanby will present and lead discussion on this recent important TMS paper. Columbia University, Dept. of Psychiatry, was a site for this study. [see attached pdf]

O'Reardon JP, et al. Efficacy and Safety of Transcranial Magnetic Stimulation in the Acute Treatment of Major Depression: A Multisite Randomized Controlled Trial. *Biological Psychiatry* 62 (11), 1 December 2007: 1208-1216

January 23, 2008

ANGEL PETERCHEV, PHD, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, Columbia University

MOVING BEYOND THE 'VIRTUAL LESION' APPROACH TO TRANSCRANIAL MAGNETIC STIMULATION

Dr. Peterchev will lead discussion of the following two papers:

PAPERS FOR JOURNAL CLUB

Silvanto J, Muggleton NG. New light through old windows: Moving beyond the "virtual lesion" approach to transcranial magnetic stimulation. *Neuroimage*. 2008 Jan 15;39(2):549-552. Epub 2007 Sep 15.

Silvanto J, Muggleton NG, Cowey A, Walsh V. Neural adaptation reveals state-dependent effects of transcranial magnetic stimulation. *Eur J Neurosci*. 2007 Mar;25(6):1874-81. Epub 2007 Apr 4.

January 30, 2008

**SPECIAL JOINT JOURNAL CLUB MEETING – BRAIN STIMULATION + BRAIN OSCILLATION
4-5pm, Room 5001**

Note different time from usual J Club time

CHARLES SCHROEDER, PHD, Nathan Kline Institute, and CUMC, and **BRUCE LUBER, PHD**, Division of Brain Stimulation and Therapeutic Modulation, Department of Psychiatry, Columbia University, will lead discussion of the following significant paper on proposed mechanisms of action of TMS:

PAPER FOR JOURNAL CLUB

Allen EA, Pasley BN, Duong T, Freeman RD*. Transcranial magnetic stimulation elicits coupled neural and hemodynamic consequences. *Science*. 2007 Sep 28;317(5846):1918-21.

February 13, 2008 **M. ELIZABETH SUBLETTE, M.D., PH.D**, Assistant Professor, Department of Psychiatry, Department of Molecular Imaging and Neuropathology, Columbia University

ESSENTIAL POLYUNSATURATED FATTY ACIDS: EFFECTS ON BRAIN IN MOOD DISORDERS

PAPER FOR JOURNAL CLUB

Sublette ME, Bosetti F, DeMar JC, Ma K, Bell JM, Fagin-Jones S, Russ MJ, Rapoport SI. Plasma free polyunsaturated fatty acid levels are associated with symptom severity in acute mania. *Bipolar Disord*. 2007 Nov;9(7):759-65.

Sublette ME, Hibbeln JR, Galfalvy H, Oquendo MA, Mann JJ. Omega-3 polyunsaturated essential fatty acid status as a predictor of future suicide risk. *Am J Psychiatry*. 2006 Jun;163(6):1100-2.

Sublette ME, Russ MJ, Smith GS. Evidence for a role of the arachidonic acid cascade in affective disorders: a review. *Bipolar Disord*. 2004 Apr;6(2):95-105. Review.

February 27, 2008

PROF. HERBERT TERRACE, Department of Psychology, Columbia University

A PRIMATE MODEL OF THE EFFECTS OF ECS AND TMS ON ORDINAL KNOWLEDGE

Papers:

Terrace H.S., The simultaneous chain: A new approach to serial learning. Trends in Cognitive Science, 2005. 9: p. 202-210.

Brannon, E.M. and Terrace H.S., Ordering of the numerosities 1-9 by monkeys. Science, 1998. 282: p. 746-749.

March 12, 2008

DAVID HARDESTY, M.D., Instructor of Neurology, Depts. of Psychiatry & Neurology, Columbia University

DEEP BRAIN STIMULATION (DBS):

OVERVIEW OF PSYCHIATRIC ISSUES IN PARKINSON'S DISEASE AND DBS FOR TOURETTE SYNDROME (AN EXAMPLE OF EMERGING PSYCHIATRIC APPLICATIONS)

PAPERS FOR JOURNAL CLUB

Hardesty DE, Sackeim HA: Deep brain stimulation in movement and psychiatric disorders. Biol Psychiatry 2007, 61(7):831-835.

Servello D, Porta M, Sassi M, Brambilla A, Robertson MM. Deep brain stimulation in 18 patients with severe Gilles de la Tourette syndrome refractory to treatment: the surgery and stimulation. J Neurol Neurosurg Psychiatry. 2008 Feb;79(2):136-42. Epub 2007 Sep 10.

Marceglia S, Bianchi AB, et. al. Interaction between rhythms in the human basal ganglia: Application of bispectral analysis to local field potentials. IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 15, No. 4, December 2007

March 19, 2008, 1-2pm

[Note different week from expected J Club date]

EUGENE TUNIK, PH.D., P.T., Dept. of Physical Therapy, New York University Medical Center

USE OF TMS TO STUDY CORTICAL CONTROL OF PLANNING AND GUIDANCE OF GRASP

PAPERS FOR JOURNAL CLUB

Tunik E, Rice N, Hamilton A, Grafton ST. (2007) Beyond grasping: Representation of action in human anterior intraparietal sulcus. Neuroimage, 36 Suppl 2:T77-86.

Rice NJ, Tunik E, Grafton ST. The anterior intraparietal sulcus mediates grasp execution, independent of requirement to update: new insights from transcranial magnetic stimulation. J Neurosci. 2006 Aug 2;26(31):8176-82.

Tunik E, Frey SH, Grafton ST. Virtual lesions of the anterior intraparietal area disrupt goal-dependent on-line adjustments of grasp. Nat Neurosci. 2005 Apr;8(4):505-11. Epub 2005 Mar 20.

March 19, 2008 2-3pm, in BSTM Division Meeting, Rm 5001

SHAWN MCCLINTOCK, PHD, Fellow, Division of Brain Stimulation and Therapeutic Modulation, Columbia University; and NIMH Postdoctoral Research Fellow, Department of Psychiatry, Department of Clinical Sciences, University of Texas Southwestern Medical Center

MAGNETIC SEIZURE THERAPY: POSTICTAL NEUROCOGNITIVE PERFORMANCE

PAPERS FOR JOURNAL CLUB

Spellman T, McClintock SM, Terrace H, Lubner B, Husain MM, Lisanby SH. Differential Effects of High-Dose Magnetic Seizure Therapy and Electroconvulsive Shock on Cognitive Function. *Biol Psychiatry*. 2008 Feb 7; [Epub ahead of print].

McClintock SM, Husain MM, Cullum CM, Lubner B, Lisanby SH. Neurocognitive Associated Effects of Magnetic Seizure Therapy. *The Clinical Neuropsychologist*, 21(3): 2007, 399.

White PF, Amos Q, Zhang Y, Stool L, Husain MM, Thornton L, Downing M, McClintock S, Lisanby SH. Anesthetic considerations for magnetic seizure therapy: a novel therapy for severe depression. *Anesth Analg*. 2006 Jul;103(1):76-80.

March 26, 2008 – **SASCHA PURMANN, PH.D. CAND.**, University of Heidelberg, Germany; Visiting pre-doctoral fellow, Joint Program for MR Imaging and Cognitive Sciences, and Division of Brain Stimulation and Therapeutic Modulation, Columbia University

SELECTIVE ATTENTION AND COGNITIVE CONTROL: TESTING THE ACTION-MONITORING MODEL WITH TMS

PAPER FOR JOURNAL CLUB

J. Rollnik, C. Schröder, A. Rodríguez-Fornells, A. Kurzbuch, J. Däuper, J. Möller, T. Münte. Functional lesions and human action monitoring: combining repetitive transcranial magnetic stimulation and event-related brain potentials. *Clinical Neurophysiology*, 2004 Jan. 115(1), 145-153.

April 9, 2008 **RUTH FISCHBACH, PH.D., M.P.E.**, Professor of Bioethics, Director, Center for Bioethics, Columbia University, College of P&S

NEUROTECHNOLOGY CONTENT OF A NEW COLUMBIA UNIVERSITY NEUROETHICS WEB COURSE

Recently Dr. Fischbach's Center received funding from the Dana Foundation to create an online course in Neuroethics at the college level, Neuroethics: Implications of Advances in Neuroscience. Members of the Division of Brain Stimulation and Therapeutic Modulation gave comments on the Neurotechnology section content. The website will continue to be added to as this important area in brain science develops. Go to: <http://ccnmtl.columbia.edu/projects/neuroethics/index.html>

PAPERS FOR JOURNAL CLUB

Fischbach RL, Fischbach GD. Neuroethicists needed now more than ever. *Am J Bioeth*. 2008 Jan;8(1):47-8; discussion W5-8.

April 23, 2008 **SARAH H. LISANBY, M.D.**, Director, Division of Brain Stimulation and Therapeutic Modulation, Columbia University, and **STEFAN ROWNY, M.D.**, Postdoctoral Fellow, Division of Brain Stimulation and Therapeutic Modulation

MECHANISMS OF ACTION OF ECT

PAPER FOR JOURNAL CLUB

McCormick LM, Boles Ponto LL, Pierson RK, Johnson HJ, Magnotta V, Brumm MC. *J ECT*. 2007 Dec;23(4):265-73. Metabolic correlates of antidepressant and antipsychotic response in patients with psychotic depression undergoing electroconvulsive therapy.

May 14, 2008 **SALOMÃO (SOLOMON) SEGAL, M.D.**, Post-doctoral Research Fellow
Department of Psychiatry, and Division of Brain Stimulation and Therapeutic Modulation, Columbia University

BRODMANN AREA 25 – DIRECTED DEEP BRAIN STIMULATION IN MAJOR DEPRESSION DISORDER: UNVEILING THE MECHANISMS OF ACTION THROUGH PRECLINICAL AND TRANSLATIONAL STUDIES

PAPERS FOR JOURNAL CLUB

Johansen-Berg H, Gutman DA, Behrens TE, Matthews PM, Rushworth MF, Katz E, Lozano AM, Mayberg HS. Anatomical Connectivity of the Subgenual Cingulate Region Targeted with Deep Brain Stimulation for Treatment-Resistant Depression. *Cereb Cortex*. 2007 Oct 10;

Mayberg HS, Lozano AM, Voon V, McNeely HE, Seminowicz D, Hamani C, Schwab JM, Kennedy SH. Deep brain stimulation for treatment-resistant depression. *Neuron*. 2005 Mar 3;45(5):651-60

***Segal S.**, Tetens J., Kegeles L., Castrillon J., Steinfeld S., Krueger K., Dashnaw S., Hirsh J., Abi-Dargham A., Bradberry C., Slifstein M., Moore H. The effects of local high frequency electrical stimulation on monoamine efflux in the subgenual cingulate cortex (Brodmann area 25) and its striatal and thalamic projection regions. Abstract presented to the Neuroscience 2007 meeting of the Society for Neuroscience, November 4th, 2007, San Diego, California.

May 21, 2008 **Yael Cycowicz, PhD**, Division of Brain Stimulation and Therapeutic Modulation, Columbia University

THE EFFECT OF TMS ON NEURAL ACTIVATION AS MEASURED BY EEG, EP AND ERP

PAPERS FOR JOURNAL CLUB

Esser SK, Huber R, Massimini M, Peterson MJ, Ferrarelli F, Tononi G. A direct demonstration of cortical LTP in humans: a combined TMS/EEG study. *Brain Res Bull*. 2006 Mar 15;69(1):86-94. Epub 2005 Dec 1.

Fuggetta G, Pavone EF, Walsh V, Kiss M, Eimer M. Cortico-cortical interactions in spatial attention: A combined ERP/TMS study. *J Neurophysiol*. 2006 May;95(5):3277-80. Epub 2006 Jan 25.

Kähkönen S, Wilenius J, Komssi S, Ilmoniemi RJ. Distinct differences in cortical reactivity of motor and prefrontal cortices to magnetic stimulation. *Clin Neurophysiol*. 2004 Mar;115(3):583-8.

June 11, 2008 **CARL ERIK FISHER**, P&S '09, Doris Duke Clinical Fellow with the Division of Brain Stimulation and Therapeutic Modulation, Columbia University - New York State Psychiatric Institute.

A “DEFAULT MODE” OF BRAIN FUNCTION: IMPLICATIONS FOR BRAIN STIMULATION

PAPERS FOR JOURNAL CLUB

June 18, 2008 **RUTH FISCHBACH, PH.D., M.P.E.**, Professor of Bioethics, Director, Center for Bioethics, Columbia University, College of P&S

NEUROTECHNOLOGY CONTENT OF A NEW COLUMBIA UNIVERSITY NEUROETHICS WEB COURSE

PART II

Recently Dr. Fischbach's Center received funding from the Dana Foundation to create an online course in Neuroethics at the college level, Neuroethics: Implications of Advances in Neuroscience. Members of the Division of Brain Stimulation and Therapeutic Modulation gave comments on the Neurotechnology section content. The website will continue to be added to as this important area in brain science develops.

***** PLEASE REVIEW THIS WEBSITE IN ADVANCE OF THE MEETING *****

<http://ccnmtl.columbia.edu/projects/neuroethics/index.html>

PAPERS FOR JOURNAL CLUB

Fischbach RL, Fischbach GD. Neuroethicists needed now more than ever. *Am J Bioeth.* 2008 Jan;8(1):47-8; discussion W5-8.

June 25, 2008 **ALEXANDRA L. SPORN, M.D.**, Assistant Professor of Clinical Psychiatry, Department of Psychiatry, Division of Brain Stimulation and Therapeutic Modulation, Columbia University - New York State Psychiatric Institute.

with **DR. GERALD FISCHBACH, DISCUSSANT**

Gerald Fischbach, MD is the Scientific Director of The Simons Foundation, and oversees the Simons Foundation Autism Research Initiative. He is formerly Dean of the Faculties of Health Sciences at Columbia University, and former Director of the National Institute of Neurological Disorders and Stroke at the N.I.H. from 1998-2001.

BRAIN STIMULATION MODALITIES IN THE TREATMENT OF AUTISM SPECTRUM DISORDERS.

PAPERS FOR JOURNAL CLUB

Just MA, Cherkassky VL, Keller TA, Minshew NJ. Cortical activation and synchronization during sentence comprehension in high-functioning autism: evidence of underconnectivity. *Brain.* 2004 Aug;127(Pt 8):1811-21. Epub 2004 Jun 23.

Mason RA, Williams DL, Kana RK, Minshew N, Just MA. Theory of Mind disruption and recruitment of the right hemisphere during narrative comprehension in autism. *Neuropsychologia.* 2008 Jan 15;46(1):269-80. Epub 2007 Aug 1.

Snyder A, Bossomaier T, Mitchell DJ. Concept formation: 'object' attributes dynamically inhibited from conscious awareness. *J Integr Neurosci.* 2004 Mar;3(1):31-46.

July 2, 2008 Dr. Joseph Isler, organizer of the Brain Oscillation Journal Club, and Dr. Sarah Lisanby, Director of the Division of Brain Stimulation and Therapeutic Modulation, invite you to attend a joint Brain Oscillation + Brain Stimulation Journal Club tomorrow:

Time: **4-5PM**

Location: **7th floor conference room of the Neurological Institute**

ANGEL PETERCHEV, PHD, Division of Brain Stimulation and Therapeutic Modulation, will present the Ferrarelli paper, w. Yuval-Greenberg paper as background.

Ferrarelli F, Massimini M, Peterson MJ, Riedner BA, Lazar M, Murphy MJ, Huber R, Rosanova M, Alexander AL, Kalin N, Tononi G. Reduced Evoked Gamma Oscillations in the Frontal Cortex in Schizophrenia Patients: A TMS/EEG Study. *Am J Psychiatry*. 2008 May 15. [Epub ahead of print]

Yuval-Greenberg S, Tomer O, Keren AS, Nelken I, Deouell LY. Transient induced gamma-band response in EEG as a manifestation of miniature saccades. *Neuron*. 2008 May 8;58(3):429-41.

July 23, 2008 **SARAH H. LISANBY, M.D.**, Professor of Clinical Psychiatry, Director, Division of Brain Stimulation and Therapeutic Modulation, Columbia University - New York State Psychiatric Institute

MECHANISMS OF ACTION OF ELECTROCONVULSIVE THERAPY (ECT)

Syed Anwarulislam, MD, Division of Brain Stimulation and Therapeutic Modulation, Columbia University - New York State Psychiatric Institute, will present the following paper, also on proposed mechanisms of action of ECT:

Taylor SM. Electroconvulsive therapy, brain-derived neurotrophic factor, and possible neurorestorative benefit of the clinical application of electroconvulsive therapy. *J ECT*. 2008 Jun;24(2):160-5.

August 13, 2008 **GIORDANO D'URSO, M.D.**, Unit of Psychiatry, Department of Neuroscience and Behavior, University of Naples "Federico II", Naples, Italy

CLINICAL AND NEURO-FUNCTIONAL EFFECTS OF ECT IN DRUG-REFRACTORY OCD: A CASE STUDY

PAPERS FOR JOURNAL CLUB

Dell'Osso B, Altamura AC, Allen A, Hollander E. Brain stimulation techniques in the treatment of obsessive-compulsive disorder: current and future directions. *CNS Spectr*. 2005 Dec;10(12):966-79, 983.

Evans KC, Dougherty DD, Pollack MH, Rauch SL. Using neuroimaging to predict treatment response in mood and anxiety disorders. *Ann Clin Psychiatry*. 2006 Jan-Mar;18(1):33-42. Review.

Hollander E, Kaplan A, Schmeidler J, Yang H, Li D, Koran LM, Barbato LM. Neurological soft signs as predictors of treatment response to selective serotonin reuptake inhibitors in obsessive-compulsive disorder. *J Neuropsychiatry Clin Neurosci*. 2005 Fall;17(4):472-7.

August 20, 2008 **BRUCE LUBER, PH.D.**, Division of Brain Stimulation and Therapeutic Modulation Columbia University

USING TMS TO INVESTIGATE BODY AWARENESS PROCESSING IN EXTRASTRIATE CORTEX

PAPERS FOR JOURNAL CLUB

Please read this paper:

Urgesi C, Calvo-Merino B, Haggard P, Aglioti SM. Transcranial magnetic stimulation reveals two cortical pathways for visual body processing. *J Neurosci*. 2007 Jul 25;27(30):8023-30.

Background:

Schilbach L, Eickhoff SB, Rotarska-Jagiela A, Fink GR, Vogeley K. Minds at rest? Social cognition as the default mode of cognizing and its putative relationship to the "default system" of the brain. *Conscious Cogn.* 2008 Jun;17(2):457-67. Epub 2008 Apr 22.

David N, Cohen MX, Newen A, Bewernick BH, Shah NJ, Fink GR, Vogeley K. The extrastriate cortex distinguishes between the consequences of one's own and others' behavior. *Neuroimage.* 2007 Jul 1;36(3):1004-14. Epub 2007 Mar 30.

Tues. September 9, 2008 1:00 PM to 2:00 PM [Note different room from usual for our J Club events]

ACHIM SCHWEIKARD, PH.D, Director, Institute for Robotics and Cognitive Systems, University Luebeck, Luebeck, Germany

A ROBOT SYSTEM FOR REPEATABLE, MOTION-COMPENSATED STIMULATION *

*Additional topic: A robot system for electrode placement in the deep brain

PAPER FOR JOURNAL CLUB

Matthäus L, Trillenber P, Fadini T, Finke M, Schweikard A. Brain mapping with Transcranial Magnetic Stimulation using a refined Correlation Ratio and Kendall's tau. *Statistics in Medicine*, Published Online: 11 Aug 2008, John Wiley & Sons, Ltd., 2008

Wed. September 10, 2008 12:00PM - 1:30PM **Special Event**

[Note different time, location from usual for our J Club events]

Colloquium Series on Health, Law, and Society, Columbia Law School
Case Lounge, 7th Floor, Columbia Law School (Jerome Greene Hall)
116th Street and Amsterdam Avenue

"The Anatomy of a Lie and the Law"

Joy Hirsch, Ph.D., Professor of Functional NeuroRadiology, Neuroscience, & Psychology
Sarah H. Lisanby, M.D., Professor of Clinical Psychiatry

Lunch will be served at 12 noon. Presentation begins at 12:15 p.m.

Is the anatomy of a lie a matter of the law? Recent studies using advanced brain imaging techniques (fMRI) provide evidence that the neural circuitry engaged during false responses is distinct from true responses. Whether fMRI tests and techniques based on interference with lie generation can be used as "lie detectors" have recently become a highly debated topic in academic, commercial, government, and legal communities. This pair of presentations will introduce basic principles and summarize the issues related to imaging deception using fMRI and to interfering with deception with magnetic brain stimulation.

Wed. September 24, 2008 **FORTUNATO BATTAGLIA, M.D., PH.D**, Asst. Professor, Sophie Davis School of Bio-Medical Education, CCNY, CUNY; Adjunct Asst. Professor, Division of Brain Stimulation and Therapeutic Modulation, Columbia University

SYNAPTIC MECHANISMS UNDERLYING THE THERAPEUTIC EFFECTS OF RTMS

PAPER FOR JOURNAL CLUB

Crupi D, Ghilardi MF, Mosiello C, Di Rocco A, Quartarone A, Battaglia F. Cortical and brainstem LTP-like plasticity in Huntington's disease. Brain Res Bull. 2008 Jan 31;75(1):107-14. Epub 2007 Aug 22.

Wed. October 8, 2008 **MAROM BIKSON, PH.D.**, Associate Professor, Director, Biomedical Engineering, CCNY

ABHISHEK DATTA, PH.D. CAND., Biomedical Engineering, CCNY

PETER BULOW, M.D., Asst. Professor of Clinical Psychiatry, Division of Brain Stimulation and Therapeutic Modulation

will discuss their recently published paper

BIKSON M, BULOW P, STILLER JW, DATTA A, BATTAGLIA F, KARNUP SV, POSTOLACHE TT. TRANSCRANIAL DIRECT CURRENT STIMULATION FOR MAJOR DEPRESSION: A GENERAL SYSTEM FOR QUANTIFYING TRANSCRANIAL ELECTROTHERAPY DOSAGE. CURR TREAT OPTIONS NEUROL. 2008 SEP;10(5):377-85.

Wed. October 15, 2008: **SALOMÃO (SOLOMON) SEGAL, M.D.**, Paul Janssen Research Fellow in Translational Neuroscience, Department of Psychiatry, Divisions of Brain Stimulation and Therapeutic Modulation and Geriatrics NYSPI

will discuss the following paper

Cohen MX, Axmacher N, Lenartz D, Elger CE, Sturm V, Schlaepfer TE. Good Vibrations: Cross-frequency coupling in the human nucleus accumbens during reward processing. J Cogn Neurosci. 2008 Aug 14.

Wed. October 22, 2008: **SALOMÃO (SOLOMON) SEGAL, M.D.**, Paul Janssen Research Fellow in Translational Neuroscience, Department of Psychiatry, Divisions of Brain Stimulation and Therapeutic Modulation and Geriatrics NYSPI

MECHANISMS OF ACTION OF DEEP BRAIN STIMULATION (DBS)

PAPER FOR JOURNAL CLUB

Hammond C, Ammari R, Bioulac B, Garcia L. Latest view on the mechanism of action of deep brain stimulation. Mov Disord. 2008 Sep 10. [Epub ahead of print]

November 19, 2008 **VLADAN NOVAKOVIC, MD**, (Maimonides Medical Center, Brooklyn, NY), Visiting PGY4 Resident with the Division of Brain Stimulation and Therapeutic Modulation, Columbia University

DR. NOVAKOVIC WILL PRESENT ON THE BELOW 2008 PAPER FROM LAB OF DR. MALEK BAJBOUJ, BERLIN, GERMANY

SPECIAL VISIT AND COMMENTARY OF ANGELA MERKL, MD OF THE BAJBOUJ LAB

Schlaepfer TE, Frick C, Zobel A, Maier W, Heuser I, Bajbouj M, O'Keane, V, Corcoran C, Adolfsson R, Trimble M, Rau H, Hoff HJ, Padberg F, Müller-Siecheneder F, Audenaert K, Van den Abbeele D, Stanga Z, Hasdemir M. Vagus nerve stimulation for depression: efficacy and safety in a European study. Psychol Med. 2008 May;38(5):651-61. Epub 2008 Jan 4. Erratum in: Psychol Med. 2008 Jul;38(7):1067.

Tues. November 25, 2008 12:30-1:30PM Room 4001 Special Talk **NOTE DIFFERENT TIME AND ROOM FROM USUAL**
WON HEE LEE, M.S., Visiting Research Fellow, Department of Biomedical Engineering, University of Minnesota
Finite element human head modeling for bioelectromagnetic problems

PAPER(S) TO READ FOR SPECIAL LECTURE

W. H. Lee, T.-S. Kim, Andrew T. Kim, and S. Y. Lee, 3-D diffusion tensor-MRI anisotropy content-adaptive finite element head model generation for bioelectromagnetic imaging. Proc. the IEEE EMB 30th Annual Conf. Vancouver, Aug., 2008

W. H. Lee, T.-S. Kim, M. H. Cho, Y. B. Ahn, and S. Y. Lee, Methods and evaluations of MRI content-adaptive finite element mesh generation for bioelectromagnetic problems. Phys. Med. Biol. vol. 51, no. 23, 6176-6186, 2006

November 26, 2008 **CHRISTIAN HABECK, PH.D.**, Assistant Professor, Taub Institute for Research on Alzheimer's Disease & the Aging Brain, Columbia University

HOW TO DISENTANGLE MULTIPLE PROCESSES FROM EACH OTHER THROUGH ANALYSIS OF NEUROIMAGING DATA

PAPER FOR JOURNAL CLUB:

C. Habeck, Y. Stern. Neural network approaches and their reproducibility in the study of verbal working memory and Alzheimer's disease. Clinical Neuroscience Research 2007; 6(6): 381-390

December 10, 2008 **JOSE MARIA (PEPE) MISIEGO, MD**, Visiting Fellow, Division of Brain Stimulation and Therapeutic Modulation, Columbia University; Attending Psychiatrist, Son Llatzer Hospital and lab of Dr. Mauro Garcia-Toro, Mallorca, Spain

LOW-FREQUENCY TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN PATIENTS WITH FIBROMYALGIA AND MAJOR DEPRESSION

PAPER FOR JOURNAL CLUB:

Carretero B, Martín J, Juan A, Pradana L, Martín B, Carral M, Jimeno T, Pareja A, Montoya P, Aguirre I, Salva J, Roca M, Gili M, Garcia-Toro M. Brief Research Report: Low-Frequency Transcranial Magnetic Stimulation in Patients with Fibromyalgia and Major Depression (LF-rTMS in Fibromyalgia and Depression). Submitted, to be published 2009
[See attached pre-publication copy; not for circulation]

December 17, 2008 **MARY T. ROSEDALE, PHD, PMHNP-BC, CNAA**, Assistant Professor, Coordinator, Nursing Administration Master's & Post-Master's Program, College of Nursing, New York University

THE STRUCTURE OF THE LIVED EXPERIENCE FOR PERSONS HAVING UNDERGONE RTMS FOR DEPRESSION TREATMENT

PAPERS FOR JOURNAL CLUB

Rosedale, M. & Fu, M. (in press), Confronting the unexpected: Temporal, situational, and attributive dimensions of breast cancer survivors' experiences of distressing symptoms. *Oncology Nursing Forum*.

Rosedale, M. (in press). The survivor-loneliness of women following breast cancer. *Oncology Nursing Forum*.

Plus brief reprise of:

JENNIFER MALSERT, Visiting PhD candidate, Division of Brain Stimulation and Therapeutic Modulation, Columbia University, and the University of Grenoble, France

RTMS AND OCULAR MOVEMENTS – A POSSIBLE TOOL TO OBSERVE ASYMMETRY OF RESPONSE AND BETTER TARGET TREATMENT?