CURRICULUM VITAE

David A. McCormick

EDUCATION

1976-1979	B.S. in Mathematics, Purdue University
1976-1979	B.A. in Physiological Psychology, Purdue University
1983	Ph.D. in Neuroscience, Stanford University - Dissertation: "Cerebellum: Essential Involvement in a Simple Learned Response"

POSITIONS HELD

1979-1980	Research and Teaching Assistant, Department of Psychobiology, University of California, Irvine
1980-1983	Research Assistant, Neurosciences Program, Stanford University
1983-1987	Postdoctoral Fellow, Dept. Neurology Stanford University School of Medicine
1987-1992	Assistant Professor Section of Neuroscience/Neuroanatomy Yale University School of Medicine
1992-1994	Associate Professor, Section of Neuroscience Yale University School of Medicine
1994-pres.	Professor, Department of Neuroscience, Yale University School of Medicine
2008-pres.	Vice Director, Kavli Institute for Neuroscience, Yale University School of Medicine
2008-pres.	Dorys McConnell Duberg Professor of Neuroscience
2009-pres.	Associate, The Neuroscience Institute, La Jolla, California
2013-pres.	Director, Yale Swartz Center for Computational Neuroscience
2014-pres.	Professor of Psychology, Secondary Appointment, Dept. Psychology, Yale University
2013-pres.	Leader, New Haven Insight Meditation Sangha (approximately 750 members; 30-50 regular attendees)

HONORS AND AWARDS

1977	Phi Beta Kappa
1978	Phi Kappa Phi
1979	B.A., B.S., Summa Cum Laude
1981	NIMH Predoctoral Fellowship
1983	John R. Whittier Award, Committee to Combat Huntington's Disease
1984	Giannini Foundation Fellowship
1984	NIH Postdoctoral Fellowship

1984	Donald B. Lindsley Award (Awarded annually to the top Ph.D. dissertation in Behavioral Neuroscience in North America)
1987	Esther and Joseph Klingenstein Fellowship
1989	Jane and Peter Pattison Award
1990	Sloan Foundation Award
1992	Runner-up, Society for Neuroscience Young Investigator Award
1993	Esther and Joseph Klingenstein Fund Senior Investigator Award
1997	McKnight Foundation Investigator Award
2001	Yngve Zotterman Prize, Swedish Physiological Society, Stockholm
2005	Jacob Javits Investigator Award, NIH
2008	Dorys McConnell Duberg Professor of Neuroscience
2012	Fellow, American Association for the Advancement of Science
2014	Fellow, American Academy of Arts and Sciences
2015	Member, National Academy of Medicine
2016	Member, Connecticut Academy of Science and Engineering
2016	Jacob Javitz Investigator Award, NIH (2nd time, combined together with an R35, 8 year grant award)

SCIENTIFIC MEMBERSHIP AND EDITORIAL BOARDS

1980-pres.	Society for Neuroscience
1987-pres.	IBRO
1995-pres.	American Physiological Society
1990-1996	Associate Editor, Journal of Neuroscience
1993-1999	Associate Editor, Journal of Computational Neuroscience
1995-2006	Associate Editor, Journal of Neurophysiology
1998-pres.	Associate Editor, Cerebral Cortex
2000-2008	Reviewing Editor, Thalamus and Related Systems
2000-pres.	Editorial Board, Visual Neuroscience
2012-pres.	Fellow, American Association for the Advancement of Science
2014-pres.	Fellow, American Academy of Arts and Sciences
2015-pres.	Member, National Academy of Medicine
2016-pres.	Advisory Editor, eNeuro

COMMITTEES

1995-1996	Scholar Awards Committee, Yale University School of Medicine
1997-1998	Chair, Scholar Awards Committee, Yale University School of Medicine
1999-2000	Chair, NINDS Panel on Channels, Synapses and Circuits
2000-present	Chair, Neuroscience Faculty Recruitment Committee
2003-2006	Promotions Committee (term), Yale University School of Medicine
2008	Neurology Chair Search Committee

2008	Physiology Chair Search Committee
2008-2012	Yale Medical School Tenure Allotment Committee
2011-pres.	Society for Neuroscience Program Committee
2012-pres.	Member, Neural Coding Advisory Board, Allen Institute for Brain Science – 10 year effort to decipher the functional physiology of the cerebral cortex by the Allen Institute
2013-2015	Biological Sciences Advisory Committee (advises on structure of Division of Biological Sciences and makes tenure and promotion decisions), Yale University
2014-2017	Chair, Society for Neuroscience Program Committee

YALE UNIVERSITY AFFILIATIONS

2008-2010	Fellow, Berkeley College
2010-pres.	Resident Fellow, Timothy Dwight College. Live with 400 Yale undergraduates, interacting on a daily basis and advising a subset of students on academics and careers in sciences.

TEACHING

1990-2002	Cellular Basis of Epilepsy. Yale University School of Medicine
1990-pres.	Neurobiology 500b. Six lectures on the functional physiology of neurons, synaptic transmission, epilepsy, sleep, and thalamus.
1990-2008	Lectures on Epilepsy for Neurology Grand Rounds and courses on the cellular basis of disease.
1994-1999	Director of Graduate Studies, Neuroscience Graduate Program.
1995-2000	Neurobiology 507a. Cerebral Cortex.
2012-pres.	Neurobiology of Cortical Systems (two lectures and discussion sections)
2012	Fundamentals of Neuroscience (one lecture and discussion section)
2015-pres.	Instructor, Emory-Tibetan Science Initiative. Gaden-Drepung Tibetan Buddhist Monasteries, Mundgod, India. Invited to participate yearly in an intensive summer workshop on Neuroscience as part of an educational program for Tibetan Monks.

UNDERGRADUATE STUDENT ADVISING

2011-pres.	Freshman and Sophomore faculty advisor to undergraduate students.
2011-pres.	Hosted 25 undergraduate students to perform research in my laboratory.

POSTDOCTORAL FELLOWS AND GRADUATE STUDENTS

1989 to present. 31 postdoctoral fellows, 10 graduate students trained or in training. (Hans-Christian Pape, Anne Williamson, Ary Ramoa, Thierry Bal, Marcus von Krosigk, Uhnoh Kim, Francine Trent, Mavi Sanchez-Vives, Lionel Nowak, Anita Luthi, Joshua Brumberg, Rowshanak Hashemiyoon, Udo Kraushaar, Yousheng Shu, Jeremy Bergsman, Chetan Ghandi, Christian Broberger, Nadine Kabani, Caitlin Aptowicz, Kristy Sundberg, Carlos Mauriera, Flavio Frohlich, Alvaro Duque, Markus Woefel, Yuguo Yu, Babak Tahvildari, Robert Sachdev, Eddie Zagha, Matthew McGinley. *Current Postdocs:* Garrett Neske, Jantine Broek, Dennis Nestvogel (arrives summer, 2017). Students: Zhong Wang, Kendall Lee, James Monckton, Andrea Hasenstaub, Bilal Haider, Carolina Oliva, Amanda Casale, Amanda Foust. *Current Students:* David Solkoff, Gregg Castelluci.

FUNDING

Current:

1) NINDS Jacob Javitz/R35 award (R35NS097287), "Cortical Dynamics and Neural/Behavioral Performance" 12/1/2016-9/30/2024; Score 10 (< 1 percentile); $500,000 direct/year
2) NIDCD R01DC015803, "Mechanisms of Rapid Modulation of Auditory Responsiveness"; 11/1/2016-10/31/2021; Score 18 (3 percentile); $212,500 direct/year
3) DARPA ("Optimal State Achieved through Control of Modulatory Transmitter Pathways"; 1/1/2017-12/31/2020; approximately $300,000/year direct)
4) Yale Kavli Institute for Neuroscience ($75,000 direct)
5) Dorys McConnell Duberg Chair (approximately $160,000/year direct)

Current Total Grant Funding (Direct): approximately $1.1 million/year.

Completed:

Over 30 years of funding history from NIH (R01, PPG, Center grants), NSF, and private foundations. Details available on request.

LABORATORY FACILITIES

Experimental facilities include:

1) 2 – 2-photon rigs for monitoring the activity of GCAMP6 labeled neurons and axons in awake, behaving mice performing sensory detection, discrimination tasks (auditory, visual).
2) 6 rigs for extracellular multielectrode/whole cell recordings in awake behaving mice performing sensory detection tasks combined with optogenetics
3) 8 training rigs for training animals to perform tasks

4) 2 slice recording rigs for multiple whole cell recording in vitro
5) 1 rig for recording mouse vocalization mechanisms in awake, behaving mice
6) 1 voltage sensitive dye rig for monitoring at high temporal and spatial resolution the flow of electrical activity in single neurons/dendrites/axons

PUBLICATIONS

(Reverse Chronological Order)

Publication Statistics:

Google Scholar Citation Index Statistics: approximately 33,000 total citations; cited by 13,847 articles; greater than 1,800 citations/year currently; average citations/paper: 235; i10-index: 150 (number of academic publications that has at least 10 citations); ***h-index: 90*** *(90 publications have at least 90 citations each); 16 publications cited over 500 times each; 57 publications have over 200 citations each; 84 publications cited over 100 times each. Currently #44 out of 6,056 Neuroscientists on Google Scholar worldwide. Publications in Nature/Science: 12; PNAS: 6; Neuron/Cell: 15; Nature Neuroscience: 4; Journal of Neuroscience: 11; Journal of Neurophysiology: 22; Journal of Physiology: 10*

148. Hadzipasic, M., Ni, W., Nagy, M., Steenrod, N., McGinley, M.J., Kaushal, A., Thomas, E., McCormick, D.A., Horwich, A.L. (2016) Reduced high frequency motor neuron firing, EMG fractionation, and gait variability in awake walking ALS mice. Proceedings of the National Academy of Sciences, USA, in press.

147. Zagha, E., Murray, J., and McCormick, D.A. (2016) Simulating cortical feedback modulation as changes in excitation and inhibition in a corical circuit model. eNeuro, Aug 31;3(4).

146. Reimer, J., McGinley, M., McCormick, D.A., Tolias, A. (2016) Pupil fluctuations track changes in noradrenergic and cholinergic activity in the cerebral cortex. Nature Communications, in press.

145. Ferrante, M., Tahvildari, B., Duque, A., Hadzipasic, M., Salkoff, D., Zagha, E.W., Hasselmo, M.E., McCormick, D.A. (2016) Distinct functional groups emerge from the intrinsic properties of molecularly identified entorhinal interneurons and principle cells. Cerebral Cortex, in press.

144. Castellucci, G., McGinley, M.J., McCormick, D.A. Knockout of Foxp2 disrupts vocal development in mice. Scientific Reports, 6: 233305. DOI: 10.1038/srep23305.

143. Casale, A.E., Foust, A., Bal, T., McCormick, D.A. Cortical interneuron subtypes vary in their axonal action potential properties. (2015) J. Neurosci., 35: 15555-15567.

142. Zagha, E., Ge, X., McCormick, D.A. (2015) Competing circuits in motor cortex gate motor behavior. Neuron 88: 565-577.

141. McGinley, M., Vinck, M., Reimer, P., Batista-Brito, R., Zagha, E., Cadwell, C., Tolias, A., Cardin, J., McCormick, D.A. (2015) Waking state: Rapid variations modulate neural and behavioral responses. Neuron 87 (6): 1143-1161.

140. Salkoff, D.B., Zagha, E., Yuzgec, O., McCormick, D.A. (2015) Synaptic mechanisms of tight spike synchrony at gamma frequency in cerebral cortex. J. Neurosci. 35: 10236-10251.

139. McGinley, M., David, S., McCormick, D.A. (2015) Cortical membrane potential signature of optimal states for sensory signal detection. Neuron, 87:179-192.

138. Hadzipasic, M., Tahvildari, B., Nagy, M., Bian, M., Horwich, A.L., and McCormick, D.A. (2014) Selective degeneration of a physiological subtype of spinal motor neuron in mice with SOD1-linked ALS. Proceedings of the National Academy of Sciences, USA. 111:16883-8.

137. McCormick, D.A., McGinley, M.J., Salkoff, D.B. (2014) Brain state dependent activity in the cortex and thalamus. Curr. Opin. Neurobiology, 31:133-140.

136. Zagha, E., McCormick. D.A. (2014) Neural control of brain state. Curr. Opin. Neurobiology, 29:178-86.

135. Andermann, ML, Gilfoy, NB, Goldey, GJ, Sachdev, RNS, Wölfel, M, McCormick, DA, Reid, RC, and Levene, MJ (2013) Chronic cellular imaging of entire cortical columns in awake mice using microprisms, Neuron 80: 900-913.

134. Zagha, E., Casale, A.E., Sachdev, R.N.S., McGinley, M.J., and McCormick, D.A. (2013) Motor cortex feedback influences sensory processing by modulating network state, Neuron, 79(3):567-78.

133. Tahvildari, B., Wolfel, M., Duque, A., and McCormick, D.A. (2012) Selective functional interactions between excitatory and inhibitory cortical neurons and differential contribution to persistent activity of the slow oscillation. J. Neurosci. 32:12165-12179.

132. Yu, Y., Hill, A., McCormick, D.A. (2012) Warm body temperature facilitates energy efficient cortical action potentials. PLOS Computational Biology, 8(4)e1002456: Epub April 12.

131. Casale, A., McCormick, D.A. (2011) Active action potential propagation but not initiation in thalamic interneuron dendrites. J. Neurosci. 31: 18289-18302.

130. Foust, A.J. Yu, Y., Popovic, M.A., Zecevic, D., McCormick, D.A. (2011) Somatic membrane potential and Kv1 channels control spike repolarization in cortical axon collaterals and presynaptic boutons. J. Neurosci. 31: 15490-15498.

129. Popovic, M.A., Foust, A.J., McCormick, D.A., Zecevic, D. (2011) The spatio-temporal characteristics of action potential initiation in layer 5 pyramidal neurons: a voltage-imaging study. J. Physiol. 589: 4167-4187.

128. Yu, Y. Mauriera, C., Liu, X. and McCormick, D.A. (2010) P/Q and N channels control baseline and spike-triggered calcium levels in neocortical axons and synaptic boutons. J. Neuroscience, 30: 11858-11869.

127. Frohlich, F. and McCormick, D.A. (2010) Endogenous electric fields may guide neocortical network activity. Neuron 67: 129-143.

126. Foust, A., Popovic, M., Zecevic, D., McCormick, D.A. (2010) Action potentials initiate in the axon initial segment and propagate through axon collaterals reliably in cerebellar Purkinje neurons. J. Neurosci. 30: 6891-6902.

125. Haider B, Krause MR, Duque A, Yu Y, Touryan J, Mazer JA, McCormick DA. (2010) Synaptic and network mechanisms of sparse and reliable visual cortical activity during nonclassical receptive field stimulation. Neuron 65: 107-121.

124. Nowak LG, Sanchez-Vives MV, McCormick DA. (2010) Spatial and temporal features of synaptic to discharge receptive field transformation in cat area 17. J. Neurophysiol. 103: 677-697.

123. Duque, A., McCormick, D.A. (2010) Circuit based localization of ferret prefrontal cortex. Cerebral Cortex, 20: 1020-1036.

122. Ros, H., Sachdev, R.N., Yu, Y., Sestan, N., McCormick, D.A. (2009) Neocortical networks entrain neuronal circuits in cerebellar cortex. J. Neurosci. 29: 10309-10320.

121. Haider, B, McCormick, D.A. (2009) Rapid neocortical dynamics: cellular and network mechanisms. Neuron 62: 171-189.

120. Yu, Y., Shu, Y., McCormick, D.A. (2008) Cortical action potential back-propagation explains spike threshold variability and rapid onset kinetics. J. Neuroscience, 28: 7260-7272.

119. Nowak, L.G., Sanchez-Vives, M.V., McCormick, D.A. (2008) Lack of orientation and direction selectivity in a subgroup of fast spiking inhibitory interneurons: cellular and synaptic mechanisms and comparison with other electrophysiological cell types. Cerebral Cortex 18: 1058-1078.

118. Hasenstaub, A., Sachdev, R.N., McCormick, D.A. (2007) State changes rapidly modulate cortical neuronal responsiveness. J. Neurosci. 27: 9607-9622.

117. Shu, Y., Yu, Y., Yang, J., McCormick, D.A. (2007) Selective control of cortical axonal spikes by a slowly inactivating K^+ current. Proc. Nat. Acad. Sci. USA 104: 11453-11458.

116. Huguenard, J.R. and McCormick, D.A. (2007) Thalamic synchrony and dynamic regulation of global forebrain oscillations. Trends in Neuroscience 30: 350-356.

115. Haider, B., Duque, A., Hasenstaub, A.R., Yu, Y., and McCormick, D.A. (2007) Enhancement of visual responsiveness by spontaneous local network activity in vivo. J. Neurophysiology, 97: 4186-4202.

114. Wang, M., Ramos, B.P., Paspasala, C.D., Shu, Y., Simen, A., Duque, A., Vijayraghavan, S., Brennan, A., Dudley, A. Nou, E., Mazer, J.A., McCormick, D.A., Arnsten, A.F.T. (2007) α2A-Adrenoceptor stimulation strengthens working memory networks by

inhibiting cAMP production and closing HCN channels in prefrontal cortex. Cell, 129: 397-410.

113. McCormick, D.A., Shu, Y., Yu, Y. (2007) Hodgkin and Huxley model - still standing? Nature 445: 4 January 2007 doi:10.1038/nature05523

112. Shu, Y., Duque, A., Yu, Y., Haider, B., McCormick, D.A. (2007) Properties of action potential initiation in neocortical pyramidal cells: evidence from whole cell axon recordings. J. Neurophysiol. 97: 746-760.

111. Haider, B., Duque, A., Hasenstaub, A.R., and McCormick, D.A. (2006) Neocortical network activity in vivo is generated through a dynamic balance of excitation and inhibition. J. Neuroscience 26: 4535-4545.

110. Shu, Y., Hasenstaub, A., Duque, A., Yu, Y. and McCormick, D.A. (2006) Modulation of intracortical synaptic potentials by presynaptic membrane potential. Nature 441: 761-765.

109. Hasenstaub, A., Shu, Y., Haider, B, Kraushaar, U., Duque, A., and McCormick, D.A. (2005) Inhibitory postsynaptic potentials carry synchronized frequency information in active cortical networks. Neuron, 47: 423-435.

108. McCormick, D.A. (2005) Neuronal Networks: Flip-Flops in the Brain. Current Biology, 15: R294-296.

107. Nowak, L.G., Sanchez-Vives, M.V., and McCormick, D.A. (2005) Role of synaptic and intrinsic membrane properties in short-term receptive field dynamics in cat area 17. J. Neurosci. 25: 1866-1880.

106. Broberger, C., and McCormick, D.A. (2005) Excitatory effects of thyrotropin-releasing hormone in the thalamus. J. Neurosci. 25: 1664-1673.

105. Descazlo, V.F., Nowak, L.G., Brumberg, J.C., McCormick, D.A., and Sanchez-Vives, M.V. (2005) Slow adaptation in fast-spiking neurons of visual cortex. J. Neurophysiol. 93: 1111-1118.

104. Bergsman, J.B., DeCamilli, P., and McCormick, D.A. (2004) Multiple large inputs to principal cells in the mouse medial nucleus of the trapezoid body. J. Neurophysiol. 92: 545-552.

103. Lee, K., Broberger, C., Kim, U., and McCormick, D.A. (2004) Histamine Modulates Thalamocortical Activity by Activating a Chloride Conductance in Ferret Perigeniculate Neurons. PNAS, 101: 6716-6721.

102. Shu, Y., Hasenstaub, A., Badoual, M., Bal, T., and McCormick, D.A. (2003) Barrages of synaptic activity control the gain and sensitivity of cortical neurons. J. Neurosci. 23: 10388-10401.

101. McCormick, D.A., Shu, Y., Hasenstaub, A., Sanchez-Vives, M., Badoual, M., and Bal, T. (2003) Persistent activity: Mechanisms of generation and effects on neuronal excitability. Cerebral Cortex 13: 1219-1231.

100. Shu, Y., Hasenstaub, A., McCormick, D.A. (2003) Turning on and off recurrent balanced cortical activity. Nature 423: 288-293.

99. Nowak, L.G., Azouz, R., Sanchez-Vives, M.V., Gray, C.M., and McCormick, D.A. (2003) Electrophysiological classes of cat primary visual cortical neurons in vivo as revealed by quantitative analyses. J. Neurophysiol. 89: 1541-1566.

98. Monckton, J., and McCormick, D.A. (2003) Cortical and Comparative physiological and serotoninergic properties of pulvinar neurons in monkey, cat, and ferret. Thalamus and Related Systems, 2: 239-252.

97. Wang, X-J., Liu, Y., Sanchez-Vives, M.V., and McCormick, D.A. (2003) Cortical and Adaptation and temporal decorrelation by single neurons in the primary visual cortex. J. Neurophysiol. 89: 3279-3293.

96. Compte, A., Sanchez-Vives, M.V., McCormick, D.A., and Wang, X.J. (2003) Cellular and network mechanisms of slow oscillatory activity (< 1 Hz) in a cortical network model. J. Neurophysiol. 89:2707-2725.

95. McCormick, D.A. (2002) Cortical and Subcortical Generators of Normal and Abnormal Rhythmicity. Int. Review of Neurobiology 49: 99-114.

94. Monckton, J. and McCormick, D.A. (2002) Neuromodulatory Role of Serotonin in the Ferret Thalamus. J. Neurophysiology 87: 2124-2136.

93. Anita Lüthi, Gilbert Di Paolo, Ottavio Cremona, Laurie Daniell, Pietro De Camilli, and David A. McCormick (2001) Synaptojanin 1 Contributes to Maintaining the Stability of GABAergic Transmission in Primary Cultures of Cortical Neurons J. Neurosci. 21: 9101-9111.

92. Shu, Y.S. and McCormick, D.A. (2002) Inhibitory Interactions between ferret thalamic reticular neurons. J. Neurophysiol. 87: 2571-2576.

91. McCormick, D.A. and Contreras, D. (2001) Cellular and network mechanisms of epilepsy. Ann. Rev. Physiol. 63: 815-846.

90. McCormick, D.A. (2001) Brain calculus: Neural integration and persistent activity. Nature Neurosci. 4: 113-114.

89. Sanchez-Vives, M.V., and McCormick, D.A. (2000) Cellular and network mechanisms of rhythmic recurrent activity in neocortex. Nature Neurosci. 3: 1027-1034.

88. Blumenfeld, H. and McCormick, D.A. (2000) Corticothalamic inputs control the pattern of activity generated in thalamocortical networks. J. Neurosci., 20: 5153-5162.

87. Brumberg, J.C., Nowak, L.G., McCormick, D.A. (2000) Ionic mechanisms underlying repetitive high frequency burst firing in supragranular cortical neurons. J. Neurosci. 20: 4829-4843.

86. Sanchez-Vives, M.V., Nowak, L.G., and McCormick, D.A. (2000) Membrane mechanisms underlying contrast adaptation in cat area 17 in vivo. J. Neurosci. 20: 4267-4285.

85. Sanchez-Vives, M.V., Nowak, L.G., and McCormick, D.A. (2000) Cellular mechanisms of long-lasting adaptation in visual cortical neurons in vitro. J. Neurosci., 20: 4286-4299.

84. Cremora, O., Di Paolo, G., Wenk, M. Luthi, A., Kim, W.T., Takei, K., Daniell, L., Nemoto, Y., Flavell, R.A., McCormick, D.A., De Camilli, P. (1999) Essential role of phosphoinositide metabolism in synaptic vesicle recycling. Cell 99: 179-188.

83. McCormick, D.A. (1999) Are thalamocortical rhythms the Rosetta stone of a subset of neurological disorders? Nature Medicine 5: 1349-1351.

82. von Krosigk, M., Monckton, J., Reiner, P., and McCormick, D.A. (1999) Dynamic properties of corticothalamic EPSPs and thalamic reticular IPSPs in thalamocortical neurons of the guinea pig dorsal lateral geniculate nucleus. Neuroscience 91: 7-20.

81. Luthi, A. and McCormick, D.A. (1999) Modulation of a pacemaker current by Ca2+-sensitive adenylyl cyclase. Nature Neuroscience 2: 634-641.

80. Destexhe, A., McCormick, D.A. and Sejnowski, T. (1999) Thalamic and thalamocortical mechanisms underlying 3 Hz spike-and-wave discharges. Prog. Brain Res. 121: 289-307.

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77. Luthi, A., and McCormick, D. A. (1998) H-current: properties of a cellular and network pacemaker. Neuron, 21: 9-12.

76. Luthi, A. and McCormick, D.A. (1998) Periodicity of thalamic synchronized oscillations: the role of Ca2+ - mediated upregulation of Ih. Neuron, 20:553-563.

75. Kim, U. and McCormick, D.A. (1998) The functional influence of burst and tonic firing mode on synaptic interactions in the thalamus. J. Neurosci. 18: 9500-9516.

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71. Sanchez-Vives M.V. and McCormick, D.A. (1997) Functional Properties of Perigeniculate Inhibition of LGNd Thalamocortical Neurons in vitro. J. Neurosci. 17: 8880-8893.

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66. Bal, T. and McCormick, D.A. (1997) Synchronized oscillations in the inferior olive are controlled by the hyperpolarization-activated cation current Ih. J. Neurophysiol. 77: 3145-3156.

65. Gray, C.M. and McCormick, D.A. (1996) Chattering cells: Superficial pyramidal neurons contributing to the generation of synchronous oscillations in the visual cortex. Science 274: 109-113.

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39. McCormick, D.A. (1992) Neurotransmitter actions in the thalamus and cerebral cortex. Journal of Clinical Neurophysiology 9: 212-223.

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BOOKS

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2. Steriade, M., Jones, E.G. and **McCormick, D.A.** (Editors) Thalamus: Vol. 2. Experimental and Clinical Aspects. Elsevier Science, 1997. 789 pages.

3. Huguenard, J.R. and **McCormick, D.A.** Electrophysiology of the Neuron: An Interactive Tutorial. Oxford University Press (1994). 74 pages.

BOOK CHAPTERS

24. **McCormick, D.A.** and Westbook, G. (2012) Sleep and Dreaming. In: Principles of Neuroscience, 5th edition. Eds. E. Kandell, J.A. Schwartz, T.M. Jessell, T.A. Siegelbaum.

23. **McCormick, D.A.,** Shu, Y.-S., and Hasenstaub, A. (2003) Balanced recurrent excitation and inhibition in local cortical networks. Book Chapter in: Excitatory-inhibitory

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22. **McCormick, D.A.** (1999) Membrane Potential and Action Potential. In: Fundamental Neuroscience. Eds. M.J. Zigmond, F.E. Bloom, S.C. Landis, J.L. Roberts, and L.R. Squire. Academic Press.

21. Destexhe, A., **McCormick, D.A**., and Sejnowski, T. (1999) Thalamic and thalamocortical mechanisms underlying 3 Hz spike-and-wave discharges. Neural Modeling of Brain Disorders. Eds. J. Reggia, E. Rupin and D. Glanzman.

20. **McCormick, D.A.** (1998) Membrane Properties and Neurotransmitter Actions. In: The Synaptic Organization of the Brain. Ed. Gordon Shepherd. Oxford University Press.

19. Bal, T., von Krosigk, M., and **McCormick**, D.A. (1993) From cellular to network mechanisms of a slow thalamic synchronized oscillation. In: Network Oscillations (Buszaki, Ed.), in press.

18. J. Huguenard, **D.A. McCormick**, D.A. Coulter (1994) Thalamocortical Interactions. In: Cerebral Cortex and Thalamus. M. Gutnick, I. Mody, D.A. Prince (Eds.).

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16. **McCormick, D.A.**, Bal, T., and von Krosigk, M. (1993) Cellular basis and neurotransmitter control of thalamic oscillation and sensory transmission. In: Thalamic Networks for Relay and Modulation. Minciacchi, M., M. Molinari, G. Macchi, and E.G. Jones (Eds.).

15. **McCormick, D.A.** Pape, H.-C., Wang, Z., von Krosigk, M., and Bal, T. (1992) Neuromodulatory control of state dependent processing in thalamocortical systems. In: Rhythmogenesis in Neurons and Networks. Georg Thieme Verlag Stuttgart, New York.

14. **McCormick, D.A.**, Bal, T., and von Krosigk, M. (1993) Cellular basis of thalamic rhythms. In: Cerebral Cortex: In Honor of Otto Cruetzfeldt.

13. **McCormick, D.A.**., Huguenard, J. and Strowbridge, B. Multistate neurones: A computational simulation of thalamic relay cells. Office of Naval Research (1991).

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11. **McCormick, D.A.**, Pape, H.C., and Williamson, A. Actions of norepinephrine in the cerebral cortex and thalamus: Implications for function of the central noradrenergic system. In: Neurobiology of the Locus Coeruleus, Pompeiano and Barnes, Eds. (1991).

10. **McCormick, D.A.** Cellular mechanisms of cholinergic control of neocortical and thalamic neuronal excitability. In M. Steriade (Ed.) Basal Forebrain Systems. Oxford University Press (1989).

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8. **McCormick, D.A.**, and Prince, D.A. Postsynaptic actions of acetylcholine in the mammalian brain, in vitro. In M. Avoli, T.A. Reader, R.W. Dykes (Eds.) Neurotransmitters and Cortical Function: From Molecules to Mind, Plenum Press, New York (1986).

7. **McCormick, D.A.** and Prince, D.A. Neurotransmitter modulation of thalamic neuronal firing pattern. In: J. Mind and Behavior Supplement on Inhibition in the Brain. C. Ribak (Ed.) **8** 573-590.

6. Prince, D.A., **McCormick, D.A.**, and Thompson, S.H. Inhibitory control of thalamus and cerebral cortex. In Inactivation of Hypersensitive Neurons, Alan Liss, (1986).

5. Thompson, R.F., **McCormick, D.A.** and Lavond, D.G. Localization of the essential memory trace system for a basic form of associative learning in the mammalian brain. In Stewart Hulse (Ed.) G. Stanley Hall Centennial Volume (1983).

4. Thompson, R.F., Donegan, N.H., Clark, G.A., Lavond, D.G., Lincoln, J.S., Madden, J., Mamounas, L.A., Mauk, M. and **McCormick, D.A.** Neuronal substrates of discrete, defensive conditioned reflexes, conditioned fear states, and their interactions in the rabbit. In I. Gormazano, W.F. Prokasy, and R.F. Thompson (Eds.) Classical Conditioning III: Behavioral, Neurophysiological, and Neurochemical Studies in the Rabbit. Hillsdale, N.J., Erlbaum (1983).

3. Thompson, R.F., **McCormick, D.A.**, Lavond, D.G., Clark, G.A., Kettner, R.E., and Mauk, M.D. The engram found? Initial localization of the memory trace for a basic form of associative learning. In A.N. Epstein (Ed.) Progress in Psychobiology and Physiological Psychology, New York: Academic Press, Inc. (1982) 167-196.

2. Thompson, R.F., Barchas, J.D., Clark, G.A., Donegan, N., Kettner, R.E., Lavond, D.G., Madden, J., Mauk, M.D. and **McCormick, D.A.** Neuronal substrates of associative

learning in the mammalian brain. In Alkon, D.L. and Farley, J. (Eds.), Primary Neural Substrate of Learning and Behavioral Change. Princeton Univ. Press (1983).

1. Thompson, R.F., Clark, G.A., Doneghan, N.H., Lavond, D.G., Madden, J., Mamounas, L.A., Mauk, M.D. and **McCormick, D.A.** Neuronal substrates of basic associative learning. In L. Squire and N. Butters (Eds.), Neuropsychology of the Mind. Guilford Press (1983).

(ABSTRACTS - Over 200 abstracts at various meetings, including Society for Neuroscience, American Physiological Society, and European Neuroscience Association.)

INVITED SYMPOSIUM

1. December, 1983 Learning and Memory conference, Salt Lake city, Utah. "Role of the cerebellum in classically conditioned responses"

2. August, 1985 Second Symposium on the Subtypes of Muscarinic Receptors, Boston, Mass. "Subtypes of muscarinic receptors mediate different ionic responses to acetylcholine in the mammalian CNS"

3. July, 1986 Inactivation of hypersensitive neurons, Vancouver, Canada "Modulation of burst firing properties in thalamic cells by neurotransmitters".

4. July, 1986 Neurotransmitters and cortical function: From molecules to mind, Montreal, Canada "Actions of acetylcholine in the mammalian CNS".

5. November, 1986 Inhibition in the CNS, Washington, D.C., "Inhibitory control of thalamic and cortical neuronal activities".

6. February, 1986 University of Chicago "Postsynaptic actions of acetylcholine in the mammalian CNS".

7. January, 1987 California Institute of Technology "Neuromodulation by acetylcholine and norepinephrine of thalamic and cortical neuronal excitability".

8. February, 1987 University of California at San Francisco "Role of acetylcholine and norepinephrine in determining thalamic and cortical excitability".

9. February, 1987 Duke University (Department of Pharmacology) "Postsynaptic actions of acetylcholine in the brain".

10. January, 1988 Laval University, Quebec "Ionic mechanisms of cholinergic modulation in the thalamus".

11. January, 1988 Montreal General Hospital "Possible cellular mechanisms of the ascending control of arousal".

12. May, 1988 Massachusetts Institute of Technology "Role of cholinergic and noradrenergic pathways in the ascending control of forebrain excitability"

13. March, 1989 Duke University (Department of Neuroscience) "Postsynaptic actions of acetylcholine and norepinephrine and their relevance to the ascending control of arousal".

14. April, 1989 Hahnemann University "Neurotransmitter control of thalamic and cortical neuronal excitability".

15. May, 1989 Yale University "Cellular substrate for the ascending control of arousal".

16. August, 1989 Harvard University/Brockton VA "Possible cellular mechanisms of sleep-wake cycles".

17. September, 1989 Princeton University "Cellular mechanisms of the ascending control of arousal".

18. October, 1989 Society for Neuroscience Seminar on the brainstem cholinergic nuclei as a possible substrate of the reticular activating system.

19. April, 1990 Neurobiology of the locus coeruleus conference, Postfalls, Idaho. "Modulation of thalamocortical activity by noradrenaline"

20. May, 1990 University of Alabama, Birmingham. "Cellular basis for neuromodulation of thalamocortical activity"

21. May, 1990 University of Alabama, Birmingham. "Contribution of ionic currents to visual processing by lateral geniculate relay neurons"

22. June, 1990 Satellite Symposium on Adrenoceptors in Mancester, England "Ionic actions mediated by adrenoceptors in the brain"

23. June, 1990 Sleep Research Society Annual Meeting, Minneapolis. "Towards a new pharmacological understanding of sleep"

24. November, 1990 "Cellular mechanisms of neuromodulation of thalamic and cortical neuronal excitability" Rutgers University.

25. December, 1990 "Convergence and divergence of transmitter action in thalamic and cortical neurones" University of Nebraska Medical School

26. January, 1991 "Monoaminergic modulation of cortical neurones" Winter Conference on Brain Research, Snowmass, Colorado.

27. February, 1991 "Thalamic neurones: Cellular properties and computational modeling" Brandeis University.

28. May, 1991 "Sleep, cognition, and thalamic neurons" American Thoracic Society Meeting Anaheim, CA.

29. June, 1991 "Physiology and pharmacology of human neocortical neurones revealed by the slice technique" Canadian Federation of Biological Societies, Kingston, Ontario, Canada.

30. August, 1991 "Cellular actions of monoamines in the cerebral cortex" Montreal, IBRO.

31. August, 1991 "Cellular mechanisms of neuromodulation of thalamic activity: Implications for function" Montreal, IBRO.

32. September, 1991 "Cholinergic and noradrenergic modulation of thalamocortical processing" Neural Nets and Rhythms in Vertebrates and Invertebrates. Arcachon, France.

33. September, 1991 "Modulation of thalamic and cortical neuronal excitability by acetylcholine, noradrenaline, serotonin, histamine, and excitatory amino acids" Founding Congress of the World Federation of Sleep Research Societies. Nice, France.

34. December, 1991 "Modulation of corticothalamic activity" Washington University, St. Louis.

35. March, 1992 "Thalamic neurons and neurotransmitters" Houston Texas. Brain Development and Epilepsy - A Conference.

36. April, 1992 "Synaptic physiology of thalamus and cortex" Klingenstein/Cold spring harbor symposium on Epilepsy.

37. June, 1992 "Cholinergic and noradrenergic modulation of thalamocortical processing" Gottinger Neurobiologentagung. "Rythmogenesis in neurons and networks"

38. June, 1992 "Neuromodulation of human pyramidal cells" Third International Cleveland Clinic-Bethel Epilepsy Symposium.

39. July, 1992 "ACh postsynaptic membrane electrophysiology" Cholinergic Neurotransmission: Function and dysfunction. Montreal, Canada

40. Sept. 1992 "Thalamic networks for relay and modulation" Rome, Italy

41. October, 1992 "Cholinergic and non-cholinergic control of thalamocortical activity" University of Virginia, Charlottesville.

42. October, 1992 "State dependent processing in the mammalian visual system" Salk Institute, San Diego.

43. November, 1992 "Techniques for the investigation of cellular and pharmacological properties of central neurons" Yale University School of Medicine.

44. December, 1992 "Cellular basis of ascending control of thalamocortical activity" New York University, New York.

45. December, 1992 "Cellular mechanisms of the generation and modulation of forebrain activity" University of California, Davis.

46. January, 1993. "Cellular determinates of thalamocortical activity" Yale Physiology Retreat, Woodshole, Mass.

47. January, 1993 "Role of the glutamate metabotropic receptor in corticothalamic activation" Winter Conference on Brain Research, Vancouver, British Columbia.

48. February, 1993 "Cellular mechanisms of Spindle-wave generation and ascending control of arousal" McGill University, Montreal, Canada.

49. February, 1993 "Investigation and modeling of ionic currents involved in rhythmic oscillation in thalamic and cortical neurons" National Institute of Health, Bethesda, Maryland.

50. March, 1993 "Dynamic control of thalamocortical activity" Dahlem Conference, Berlin, Germany.

51. April, 1993 "Interaction of neurotransmitters and biophysical properties in determining pattern of activity in the visual system" Krieger Mind/Brain Institute, Johns Hopkins University.

52. May, 1993 "Cellular basis of thalamocortical oscillations" Symposium in honor of D.A. Prince, Stanford University.

53. May, 1993 "Determination of state-dependent processing in cortical and thalamic circuits" Symposium in honor of Otto Cruetzfeldt, Goettingen, Germany.

54. June, 1993 "Computational modeling of thalamic and cortical neurons" Cold Spring Harbor, New York.

55. July, 1993. "Properties of thalamocortical activity and determination by modulatory transmitters" Gorden Conference, New Hampshire.

56. August, 1993. "Neuronal basis of oscillations in the forebrain" IUPS Congress Glasgow, Scotland.

57. August, 1993. "Control of neuronal activity through glutamate metabotropic receptors" IUPS Congress, Glasgow, Scotland.

58. August, 1993. "Cellular properties of cortical and thalamic neurons" Methods in Computational Neuroscience Course, Woodshole, Mass.

59. August, 1993. "Methods in computational modeling of single thalamic cells". Methods in Computational Neuroscience Course, Woodshole, Mass.

60. October, 1993 "Neuropharmacology of motor control" sponsored by the American Physiological Society; San Diego, CA.

61. October, 1993 "Role of neurotransmitters in thalamocortical activation" American Electroencephalograpic Society. New Orleans, Louisiana.

62. October, 1993. "Neurotransmitter actions in the thalamus and cerebral cortex" Louisiana State University Medical Center. New Orleans, Louisiana.

63. November, 1993 "Generalized function of thalamic nuclei" Barrels VI meeting. Washington, D.C.

64. December, 1993 "Cellular basis for Neuromodulation of activity in the mammalian visual system" University of Zurich, Switzerland.

65. January, 1994 "Network Features Involved in Synchronized Activity in the Visual System" University of Wisconsin, Madison.

66. February, 1994 "Mechanisms of generation of oscillations in the visual system" Neurovision conference in Bochum, Germany.

67. April, 1994 "Cellular basis for generation of synchronized activity in the visual system" Harvard University Symposium on Synchronized Oscillations.

68. March, 1994 "Contributions of single cell properties to network features of thalamic and cortical function" Asilomar, CA.

69. May, 1994. "Cellular mechanisms of oscillation in the thalamus" Nucleus Reticularis Thalami: a Conference. UCLA Brain Research Institute. Los Angelas, CA.

70. Sept. 1994. "Neurotransmitter actions in the thalamus and cerebral cortex" Dynamics of Synaptic Transmission conference. Zurich, Switzerland.

71. Oct. 1994 "State dependent activity in the visual system" New York University.

72. Jan. 1995 "Cellular basis of state dependent activity in thalamocortical systems" New York University Medical School.

73. Feb. 8, 1995. "Cellular Mechanisms of Thalamic and Cortical Activity" Vollum Institute.

74. April 27, 1995. "State dependent synchronized activity in the visual system" Brown University, Providence.

75. May 2, 1995 "Cellular Mechanisms of Function and Dysfunction in the Visual System" Harvard University Medical School.

76. July 10, 1995 "Neuromodulation of thalamic and cortical activity" Fourth IBRO World Congress, Kyoto, Japan.

77. Sept. 8, 1995 "Cellular Basis for Network Activity in the Mammalian Forebrain" Annual Retreat for University of Pittsburgh Neuroscientists.

78. Sept. 12, 1995 "Cellular Basis of the EEG during Sleep and Arousal" American EEG Society Meeting, Washington, DC.

73. October 16, 1995 "Oscillatory Activity in the Visual system: Sleep, Wake, and Arousal" University of Tennessee.

79. November 29, 1995 "Cellular basis of Thalamic Function" University of Iowa Students Seminar Choice, 1995.

80. December 6, 1995. "Thalamocortical Activity: Sleep, Arousal, Vision, and Epilepsy" University of Pennsylvania.

81. December 12, 1995. "Cellular basis of arousal and Absence Seizures" Yale University Dept. of Neurology Grand Rounds.

82. February 2, 1996. "Synaptic Interactions in the Thalamus: Implications for Function". Thalamus Conference, Washington, D.C.

83. March 20, 1996. "Cellular basis of state dependent activity in the visual system" Albert Einstein Medical School.

84. May 12, 1996. "Cellular Mechanisms of Forebrain Function and Dysfunction" American Thoracic Society Annual Meeting, New Orleans.

85. June 12, 1996. "Cellular mechanisms of sleep and arousal in thalamocortical systems" Cornell Medical Center, New York.

86. August 26th, 1996. "Physiological properties of cortical neurons" Woodshole, Mass.

87. Sept. 12, 1996. "Thalamocortical Networks" University of Maryland, Baltimore.

88. Nov. 12, 1996 "Cellular mechanisms of rhythmic activity in the visual system" University of Connecticut.

89. Nov. 18, 1996 "Modulation of Neuronal Excitability and Behavior" Symposium at the Society for Neuroscience Meeting, Washington DC.

89. Dec. 11, 1996 "Neuromodulation of sleep-related activity in the visual system" Puerto Rico.

90. Jan. 27, 1997 "Cellular mechanisms of synchronized activity in the nervous system" Winter Conference on Brain Research.

91. Jan. 28, 1997 "Cellular mechanisms of network function in the visual system" Winter Conference on Brain Research.

92. March 3, 1997 "Mechanisms of generation of synchronized activity in the visual system" Northwestern University.

93. April 16, 1997 "Cellular mechanisms of generation of spindle waves and absence seizures" Montreal Neurological Institute.

94. April 23, 1997 "Cellular basis of thalamocortical activity in function and dysfunction" Department of Neurology, Yale University School of Medicine.

95. August 25, 1997 "Cellular mechanisms of network activity in the visual system" Marine Biological Laboratory.

96. September 12, 1997 "Contribution of cellular and synaptic properties to thalamic and cortical network function" University of Alabama, Birmingham

97. October 3rd, 1997 "Neural mechanisms of synchronized activity in the primary visual cortex" Arcachon, France.

98. November 11, 1997 "Cellular mechanisms of neuronal processing in the visual system" UCLA.

99. November 20, 1997. "Functional dynamics in the visual system" Mt. Sinai.

100. December, 1997. "How does normal activity become perverted into Absence seizures?" American Epilepsy Society.

101. Feb. 22, 1998 "Cellular basis for network activity in the visual system" Madrid, Spain.

102. March 4, 1998 "The role of time in neuronal processing" Titisee, Switzerland.

103. Nov. 30, 1998. "Functional states of activity in the visual system" National Institute Health.

104. Dec. 6, 1998. "Thalamocortical Rhythms of Epileptogenesis". American Epilepsy Soc. Meeting, San Diego.

105. Jan. 25, 1999. "Role of the thalamus in generalized seizures". Winter Conference on Brain Research. Snowmass, Colorado.

106. Feb. 8, 1999. "Cellular mechanisms of thalamocortical function" Brandeis University, Mass.

107. Feb. 11, 1999. "State dependent activity in thalamocortical networks" Cornell University, New York.

108. Feb. 25, 1999 "Normal and abnormal thalamocortical function" Hospital for Sick Children, Toronto, Canada.

109. March 18, 1999 Washington University. The C.R. Stephen Invited Lecture. "Ascending and Descending Control of Arousal and Anesthesia"

110. April 6, 1999. Cold Spring Harbor, New York. "Cellular mechanisms of synchronization in thalamocortical systems".

111. June 1, 1999. Cellular Mechanisms of Synchronized Thalamocortical Rhythms. Strasbourg, France. Workshop on Sleep Regulation.

112. July 18, 1999. Gordon Conference, Newport, RI. "Mechanisms of dynamic changes in thalamic and cortical activity".

113. October, 1999. Society for Neuroscience Meeting, Miami. Presidential Symposium on "Thalamus: Gateway to Consciousness".

114. December, 1999. Dynamics of Visual Cortical Function. Harvard Neuroscience Program, Boston.

115. December, 1999. Thalamocortical Function and Dysfunction. RIKEN, Tokyo, Japan.

116. May, 2000. Scholar in Residence. Cellular and network mechanisms of thalamocortical interactions. University of Pennsylvania.

117. May, 2000. Dynamic properties in the primary visual system. University of Pennsylvania.

118. September, 2000. Cellular basis of timing and adaptation in the visual cortex. Brain and Cognition conference, Fondation des Treilles, France.

119. October, 2000. Cellular mechanisms of persistent activity in the neocortex. Cold Spring Harbor symposium on persistent activity.

120. April, 2001. Dynamic plasticity in the visual system. Albany Medical College.

121. April, 2001. Dynamical properties of cortical networks in the visual system. Rutgers, New Jersey.

122. May, 2001. Possible network mechanisms of short-term memory. Dept. Psychology, Yale University.

123. June, 2001. Synchronized Activity: The good, the bad, the ugly. A Debate with Tony Movshon. Yale University School of Medicine.

124. September, 2001. Mimicking synaptic plasticity with intrinsic membrane properties. IUPS satellite symposium, Heron Island, Australia.

125. November, 2001. Cellular and Network mechanisms of dynamical states in the forebrain. Yngve Zotterman Prize Lecture. Karolinska Institute, Stockholm, Sweden.

126. March 1, 2002. Dynamic changes in cortical network activity. University of Alicante, Alicante Spain.

127. March 11, 2002. Cellular mechanisms of visual adaptation. CNRS, Gif sur Yvette, France.

128. March 14, 2002. Mechanisms of sleep. University of Paris VII, Paris, France.

129. March 25, 2002. Rapid modulation of cortical excitability. Institute Henri Poincare, Paris France.

130. June 4,2002. Rapid modulation of neuronal responsiveness in the cortex. Toulouse, France.

131. June 18, 2002. Network mechanisms of cortical function. University of Paris VI, Paris France.

132. July 9, 2002. Cortical dynamics – cellular mechanisms. University of London.

133. August 20, 2002. Influence of background synaptic activity on neuronal processing. Gordon Research Conference on Synaptic Transmission, New Hampshire.

134. October 3, 2002. Rapid Cortical Dynamics: implications for attention and memory. Brown University.

135. March 20, 2003. Cellular and Network Mechanisms of thalamocortical function. Spring neuroscience retreat: University of California, San Francisco.

136. May 16, 2003. Persistent activity in the cortex: mechanisms of generation. MIT.

137. May19, 2003. Persistent activity in the cortex: implications for memory and attention: California Institute of Technology.

138. May 27, 2003. Cortical dynamics: sleep, memory, attention. Northwestern University.

139. June 6, 2003. Cellular and network mechanisms of sleep rhythms. Associated Professional Sleep Societies 17th annual meeting, Chicago.

140. October 21, 2003. Thalamocortical circuitry underlying sleep rhythms. American Neurological Association meeting, San Francisco.

141. November 21, 2003.Cellular basis of thalamocortical network activity.

142. March 2, 2004. Cortical Dynamics. University of California San Diego.

143. April 25, 2004. Cortical Dynamical States. Dahlem Conference, Berlin.

144. May 10th, 2004. Network and Cellular mechanisms of Spontaneous Oscillations in Cortical and Thalamic networks. Meeting on "Oscillations and the Brain" Corsica, France.

145. May 25th, 2004. The role of the thalamus and the t-current in thalamocortical oscillations. Cold Spring Harbor Symposium on T-current.

146. June 1st, 2004. Rapid modulation of neuronal excitability and the possible role in attention. Brandeis University, Visiting Distinguished Scholar June 1st-4th.

147. September 10th, 2004. How the cortex operates through recurrent networks. Guest speaker at the University Pittsburgh Neuroscience Retreat.

148. October 25th, 2004. Recurrent networks in the cortex: rapid state dependent changes. Symposium at the Society for Neuroscience Meeting, San Diego, CA.

149. November 8th, 2004. Rapid Visual Receptive Field Plasticity. University of Heidelberg, Germany.

150. November 9th, 2004. Recurrent networks in the cerebral cortex and rapid gain control. University of Heidelberg, Germany.

151. November 16th, 2004. Mechanisms of generation of spontaneous activity in the cortex: clues for attention and working memory. Guest Speaker at UCLA Neuroscience Day.

152. June 26th, 2005. Influence of network activity on neuronal gain in the cerebral cortex. Gordon Research Conference, Newport, RI.

153. August 2nd, 2005. Electrophysiological properties of thalamic and cortical neurons. Computational Neuroscience Course, Arcachon, France.

154. August 3rd, 2005. Models of thalamic and cortical neurons and their interactions. Computational Neuroscience Course, Arcachon, France.

155. November 30th 2005. Timing of action potential generation by inhibitory postsynaptic potentials in the cerebral cortex. Cold Spring Harbor Symposium on GABA.

156. December 3rd, 2005. Cellular mechanisms of epilepsy. American Epilepsy Society meeting, satellite symposium, Washington, D.C.

157. December 7th, 2005. Neuronal mechanisms of cortical function. Drexel University, Philadelphia.

158. January 19th, 2006. The holistic neuron and network. CNRS, Gif-sur-Yvette, France.

159. April 25th, 2006. The holistic neuron and network. University California, Irvine.

160. June 7th, 2006. Recurrent cortical Networks. 5th Dutch Neuroscience Meeting, Netherlands.

161. July 25th, 2006. Dynamical States of the Brain. RIKEN Brain Science Institute, Tokyo, Japan.

162. August 23rd, 2006. Cellular mechanisms of persistent activity. Workshop on Higher Brain Functions, Sapporo, Japan.

163. September 10th, 2006. Mechanisms of rhythmic activity in cortical and thalamic networks. La Ciotat, France.

164. September 29th, 2006. Basis of cortical network function: recurrent networks and digital-analogue encoding. Swartz-Sloan Foundation Computational Neuroscience Meeting, La Jolla, CA.

165. November 1st, 2006. Synaptic transmission: It works differently than you may think. University of Illinois.

166. February 20th, 2007. From axons to networks. The basis of cortical function. Grand challenges in neural computation. Sante Fe, New Mexico.

167. February 26th, 2007. Synaptic transmission in the cortex operates through both analogue and digital modes. Battersby Lecture, Queens College, New York City.

168. April 23rd, 2007. Excitatory and Inhibitory Transmission. Australian Course in Advanced Neuroscience, North Stradbroke Island, Australia.

169. April 24th, 2007. Synaptic integration. Australian Course in Advanced Neuroscience, North Stradbroke Island, Australia.

170. May 1st, 2007. Synaptic transmission in the cortex: It works differently than you may think. University of California, San Diego.

171. May 2nd, 2007. The digital and analogue nature of intracortical synaptic communication. University of Southern California.

172. June 30th, 2007. Implications of the basic operating principles of neocortical networks. Sloan-Swartz Meeting, UCSD.

173. September 26th, 2007. Rapid Cortical Dynamics. Chilean Neuroscience Meeting, Los Andes, Chile.

174. November 1st, 2007. Analog and digital communication within the cerebral cortex. Stanford University.

175. December 3rd, 2007. Properties of intracortical axons: implications for epilepsy. American Epilepsy Society Meeting, Philadelphia.

176. December 10th, 2007. The holistic neuron: Interactions between the cell and cortical network. New York University.

177. March 1st, 2008. Electrophysiological properties of cortical neurons and circuits. COSYNE meeting, Snowbird, Utah.

178. April 2nd, 2008. Gain modulation as a functional property of cortical neurons. Albert Einstein Medical School.

179. June 5th, 2008. Sleep: Cellular and network mechanisms of EEG rhythms. Keynote speaker, Brain and Behaviour day, Toronto, Canada.

180. September 23rd, 2008. Cortical dynamics and recurrent networks. Ascona conference on cortical networks. Ascona, Switzerland.

181. October 16th, 2008. Cortical Network Dynamics. Psychology Department, Yale University.

182. October 28th, 2008. Rapid Cortical Dynamics. MIT.

183. November 19th, 2008. Flexible electrophysiological properties of cortical axons. Symposium on axons. Society for Neuroscience meeting, Washington DC.

184. January 22th, 2009. Functional implications of cortical network dynamics. University of Sydney, Sydney, Australia.

185. January 29th, 2009. Mixed analog and digital coding via flexible axon properties. Australian Neuroscience Convention. Canberra, Australia.

186. February 6th, 2009. Cortical dynamics rapidly gate sensory processing. University of New South Wales. Australia.

187. March 2nd, 2009. Cortical mechanisms of reliability and sparseness. COSYNE workshop, Snowbird, Utah.

188. July 26th, 2009. Is the EEG passive or active in the determination of cortical network activity? Sloan-Swartz meeting, Harvard University.

189. September 21st, 2009. The cellular basis of the EEG and its role in cortical function. Sloan-Swartz Symposium on Local Field Potentials, Yale University.

190. October 5th, 2009. Cortical mechanisms of recurrent network activity. Dept. Neuroscience, Erasmus MC, Rotterdam, Netherlands.

191. October 7th, 2009. Rapid Cortical Dynamics. Netherlands Institute of Neuroscience. Amsterdam.

192. November 3rd, 2009. Recurrent network activity. UT Southwestern.

193. March 29th, 2010. Cortical Dynamics. UT Austin.

194. April 15th, 2010. Axons are electrophysiologically complex. Vollum Institute, Portland Oregon.

195. June 28, 2010. Flexible properties of axons and synapses. Univ. College of London.

196. July 1st, 2010. Cellular mechanisms of the cortical slow oscillation. 26th International Summer School, Amsterdam.

197. July 2nd, 2010. The role of the cerebellum in simple learning. Cerebellar Nuclei – Ins and Outs. Satellite meeting to FENS, Amsterdam.

198. August 3rd, 2010. Recurrent cortical activity and its cellular mechanisms. Gordon Research Conference on Cognition, New Hampshire.

199. September 10th, 2010. Corticocortical dynamics and rapid gain modulation. Karolinska Institute, Stockholm.

200. October 7th, 2010. Cortical network dynamics and sleep. University of Montreal.

201. October 8th, 2010. Control of cortical networks by electric fields. Laval University.

202. October 12th, 2010. Computational properties of central neurons. Neuroscience course, Santa Barbara, California.

203. October 21st, 2010. Recurrent network dynamics in the cortex. Picower symposium, Cambridge, Massachusetts.

204. April 21st, 2011. Terry Invited Lecture, "Cortical Dynamics" Washington University, St. Louis.

205. May 2-8th, 2011. The role of endogenous fields in cortical activity. Towards a Science of Consciousness, Stockholm, Sweden.

206. June, 2011. Okinawa Computational Neuroscience Course, Okinawa, Japan.

207. June, 2011. Cerebral cortex as a functional connectivity machine. Yale Workshop on Adaptive and Learning systems.

208. June, 2011. "Network Mechanisms of Sleep EEG Oscillations" APSS Sleep Conference. Minneapolis.

209. June, 2011. "Innovative methodology for imaging deep in cortical tissue" Kavli Institute for Neuroscience at Yale workshop.

210. Sept., 2011. "Role of inhibition in cortical network activities". University of Texas San Antonio, Student Symposium Choice Speaker.

211. Sept. 2011. "Cortical networks and how they operate". International Symposium on the Legacy of Sir John C. Eccles. Dusseldorf, Germany.

212. Sept. 2011. "Cortical Dynamics" First joint Yale-CSIC Meeting on Neurobiology. Madrid, Spain.

213. November, 2011. "Subtypes of Inhibitory Interneurons are differentially engaged in cortical network activity". Harvard University.

214. December, 2011. "The role of subtypes of inhibitory interneurons in cortical dynamics" HHMI, Janelia Farms.

215. January, 2012. "Cortical Dynamics are Controlled by Inhibition" Carnegie Mellon University.

216. April, 2012. "Dynamics of Cortical and Thalamic Networks" University of Iowa Research Week.

217. May, 2012. "Dynamic microcircuits in the neocortex" Asilomar Conference in Honor of David A. Prince, Asilomar, California.

218. June, 2012. "State dependent activity in the cortex" University of Iowa, Department of Neurosurgery.

219. July, 2012. "How the Cortex Operates" Cold Spring Harbor Asia course on Computational Neuroscience. Beijing, China.

220. July, 2012. "The Cortex is a Functional Connectivity Machine" Chinese Academy of Sciences, Shanghai, China.

221. July, 2012 "Functional Connectivity of the Neocortex" Beijing Normal University

222. October, 2012 "Neuromodulatory control of brain state" Cell Symposium on Neuromodulation, New Orleans.

223. March, 2013 "What is the Nature of Activity in the Waking Cortex?" Max Planck Institute, Frankfurt, Germany.

224. July, 2013 "Feedback connections within cortex rapidly control responsiveness" Swartz Institute, Brandeis.

225. September, 2013 "Cellular Mechanisms of Oscillations in Thalamocortical Networks" Oxford University, England.

226. November, 2013 "Tight coupling between the state of activity in the central and peripheral nervous systems" Cajal Minisymposium, Yale University.

227. February, 2014 "Monitoring the gain of the cortex through pupil dilation" UCLA, Los Angeles.

228. February, 2014 "Pupil Diameter: A window to your soul?" Dept. Psychology, Yale University.

229. June, 2014 "De-noising the brain by careful monitoring of state". University of Washington.

230. October 2014. "Variations in State Explain Variations in Neural Responses". Brown University.

231. November, 2014 "Rapid variations in state explain noisiness of brain and behavior" Salk Institute.

232. December 2014. "De-noising neural and behavioral resposnes by understanding state". University of Paris.

233. December 2014. "Computations in Neuronal Dendrites" CNRS, Gif-sur-Yvette, France.

234. April, 2015. "Neural mechanisms of optimal performance for neural and behavioral responses" CNRS, Gif-sur-Yvette, France.

235. April, 2015. "Thalamocortical mechanisms of optimal performance" Janelia Farms Conference on Thalamocortical Networks.

236. July 2015. "State dependent cortical processing" Canonical Neural Computation Workshop. Florence, Italy.

237. November 5th. "Variations in State Explain Cortical and Behavioral Variability" Emory University.

238. November 16th, 2015. "Mechanisms of Optimal State for Neural and Behavioral Performance" Department of Neurobiology, Harvard Medical School.

239. January 29th, 2016. "Computational Implications of State Variation for Cortical Responses" Columbia Swartz Center for Computational Neuroscience.

240. March 1st, 2016. "Optimal state and its network mechanisms: implications for cortical function" University of California, San Diego.

241. March 22nd, 2016. "Cellular and Network basis of the Yerkes-Dodson Curve of performance" University of Texas, Austin.

242. April 28th, 2016. "Brain mechanisms of optimal performance" Mayo Clinic.

243. August 2, 2016. "Is the Brain Noisy or Precise?" Swartz Conference on Computational Neuroscience, Caltech.

244. September, 2016. "Revealing Neural Circuits of the Brain" Carnegie Mellon University.

245. October, 2016. "Discovering the Neural Circuits of the Brain" NIH, NINDS.

246. October 27th, 2016. "Optimization: neural mechanisms of state control" University of Texas, Houston.

247. October 28th, 2016. "Rapid fluctuations in waking explain neural and behavioral variability". Baylor University.

248. November, 2016. "The Brain: Noisy or Precise?". Cell Symposium on Big Questions in Neuroscience, San Diego.

249. December 8th, 2016. "Towards Neural Circuits of Behavior" University of Oregon.

250. February 21st, 2017. “Is the brain noisy or precise?” University of Connecticut.