

# ANNA WANG ROE

## EDUCATION and POSITIONS

4/13 – present	<u>Zhejiang University</u> Director and Professor of Zhejiang University Interdisciplinary Institute of Neuroscience and Technology (ZIINT), Qiushi Academy of Advanced Science co-Director of Zhejiang University-Siemens Joint Brain Imaging Research Center Professor of Biomedical Engineering Professor of Neuroscience at Zhejiang University School of Medicine	Hangzhou, China
7/10 – 8/15	<u>Vanderbilt University</u> Professor in Department of Psychology Professor in Dept of Radiology (secondary appointment). Professor in Biomedical Engineering (secondary appointment). Fellow of Vanderbilt University Institute of Imaging Sciences	Nashville, TN
2/12 – 7/12	<u>Institute of Neuroscience, Chinese Academy of Sciences</u> Visiting Scholar (sabbatical)	Shanghai, China
9/03 – 6/10	<u>Vanderbilt University</u> Associate Professor (tenured) in Department of Psychology. Associate Prof in Dept of Radiology (secondary appointment). Associate Prof in Biomedical Engineering (secondary appointment).	Nashville, TN
7/02 – 8/03	<u>Yale University School of Medicine</u> Associate Professor (tenure track) in Department of Neurobiology.	New Haven, CT
9/96 – 6/02	<u>Yale University School of Medicine</u> Assistant Professor (tenure track) in Section of Neurobiology.	New Haven, CT
3/96 - 8/96	<u>University of Queensland</u> Visiting Scholar at Vision Touch & Hearing Research Center.	Brisbane, Australia
7/95 - 2/96	<u>Baylor College of Medicine</u> Research Assistant Professor (non-tenure track) in Division of Neuroscience.	Houston, TX
12/92 - 6/95	<u>Baylor College of Medicine</u> Post-doctoral fellow in Division of Neuroscience under Dr. Daniel Y. Ts'o.	Houston, TX
6/91 - 11/92	<u>Rockefeller University</u> Post-doctoral fellow in Dept. of Neurobiology under Dr. Daniel Y. Ts'o & Torsten Wiesel.	New York, NY
9/86 – 5/91	<u>M.I.T.</u> Ph.D. program in Dept. of Brain and Cognitive Sciences. (Thesis under Dr. Mriganka Sur)	Cambridge, MA
9/85 – 8/86	<u>Yale University</u> Doctoral program in Section in Neuroanatomy (lab moved to MIT).	New Haven, CT
9/84 – 6/85	<u>Harvard University</u> Doctoral program in Program in Neuroscience (transferred to Yale).	Boston, MA
9/79 – 6/84	<u>Harvard University</u> B.A. <i>cum laude</i> 1984. Biochemistry major with special field of interest in neurobiology.	Cambridge, MA

## PUBLICATIONS

PEER-REVIEWED PUBLICATIONS (86) H-index 28

- Kudyba KA, Friedman RM, Gharbawie O, **Roe AW** (2017) Optical imaging of electrical stimulation in somatosensory and motor cortices: a novel approach to tracing functional connectivity. Neurophotonics, *in press*.
- Roe AW**, Winberry J, Friedman RM (2017) Study of single and multidigit activation in monkey SI using voltage sensitive dye imaging. Neurophotonics, *in press*.
- Alifu N, Yan L, Zhang H, Zebibula A, Zhu Z, Xi W, **Roe AW**, Xu B, Tian W, Qian J (2017) Organic dye doped nanoparticles with NIR emission and biocompatibility for ultra-deep in vivo two-photon microscopy under 1040 nm femtosecond excitation. Dyes and Pigments, *in press*.IF:4.055
- Lu HD, Chen G, Cai J, **Roe AW** (2017) Intrinsic signal optical imaging of visual brain activity: tracking of fast cortical dynamics. Neuroimage, 148:160-168. [PMID: 28063974] IF:5.463
- Tanigawa H, Chen G, **Roe AW** (2016) Cortical organization of attentional modulation in macaque area V4. Frontiers in Neural Circuits, 10:1-13. [PMC5149540][ PMID: 28018181] IF:3.879
- Jennings C, Landman R, Zhou Y, Sharma J, Hyman J, Movshon JA, Qiu Q, Roberts A, **Roe AW**, Wang XQ, Zhou HH, Wang LP, Zhang F, Desimone R, Feng GP (2016) Modeling human brain disorders in transgenic primates: Opportunities and challenges. Nature Neuroscience, 19(9):1123-30. [PMID: 27571191] IF:16.724
- Pálfi E, Ashaber M, Palmer C, Friedman RM, **Roe AW**, Négyessy L (2016) Neuronal connections within the hand representation in areas 3b and 1 of the somatosensory cortex in primates. Orv Hetil. 157(33):1320-1325. Hungarian. [PMID: 27523315] IF:0.291
- Chernov M, Chen G, Luke A, Torre-Healy, Friedman RM, **Roe AW** (2016) Microelectrode array stimulation combined with intrinsic optical imaging: a novel tool for functional brain mapping. J Neurosci Meth, 263:7-14. [PMID: 26820903][PMC: 4801717] IF:2.053
- Roe AW**, Chernov M, Friedman RM, Chen G (2015) In vivo mapping of cortical columnar networks in the monkey with focal electrical and optical stimulation and imaging. Frontiers in Neuroanatomy, 9:135. [PMID: 26635539][PMC: 26635539] IF:3.26
- Roe AW**, Ts'o DY (2015) Specificity of V1-V2 orientation networks in the primate visual cortex Cortex,72:168-78. [PMID: 26314798][PMC4637188] IF:4.314
- Kaas JH, **Roe AW**, Baldwin MKL, Lyon DC (2015) Resolving the V3 question: knowns and unknowns and a new proposal, Visual Neurosci, 32:E016. [PMID: 26241553] IF:1.871
- Nassi JJ, Avery MC, Cetin AH, **Roe AW**, Reynolds JH (2015) Normalization through local excitation and inhibition in primate visual cortex. Neuron, 86(6):1504-1517. [PMID: 26087167][PMC4534089] IF:13.974
- Chernov M, **Roe AW** (2014) Infrared neural stimulation: a new stimulation tool for CNS applications. Neurophotonics, 1(1):011011. [PMID:26157967] [PMC4478761]
- Ramsden BM, Hung CP, **Roe AW** (2014) Orientation domain diversity in macaque Area V2. In: Eye and Brain: Organization and function of the visual system in primates. 6:97-112.
- Chen M, Li PC, Zhu S, Han C, Xu H, Fang Y, Hu J, **Roe AW**, Lu HD (2014) An orientation map for motion boundaries in Macaque V2. Cereb Cortex, 26(1):279-87. [PMID: 25260703][PMC5006290] IF:8.285
- Kántor O, Varga A, Kovács-Öller T, Enzsöly A, Balogh L, Baksa G, Szepessy Z, Fonta C, **Roe AW**, Nitschke R, Szél A, Négyessy L, Völgyi B, Lukáts A. TNAP activity is localized at critical sites of retinal neurotransmission across various vertebrate species. Cell Tissue Res 358(1):85-98. [PMID: 24988913] IF:2.948
- Chernov M, **Roe AW** (2014) Histological assessment of thermal damage in the brain following infrared neural stimulation. Brain Stimulation, 7(3): 476–482. [PMID: 2452964][PMC4011932] IF:4.793
- Ashaber M, Pálfi E, Friedman RM, Palmer C, Jáklí B, Chen LM, **Roe AW**, Négyessy L. (2013) Connectivity of somatosensory cortical area 1 form an anatomical substrate for the emergence of multifinger receptive fields

- and complex features selectivity in the squirrel monkey (*Saimiri sciureus*). J Comp Neurol, 522(8):1769-85. [PMID:24214200][PMC4104306] IF:3.331
- Brock AA, Friedman RM, Fan RH, **Roe AW** (2013) Optical imaging of cortical networks via intracortical microstimulation. J Neurophysiol, 110:2670-2678. [PMID: 24027103][PMC3882772] IF:2.653
- Wang Z, Qi H-X, Kaas JH, **Roe AW**, Chen LM, (2013) Functional signature of recovering cortex: dissociation of local field potentials and spiking activity in somatosensory cortices of spinal cord injure monkeys. Exp Neurol, 249:132-43. [PMID: 24017995][PMC3870899] IF:4.657
- Cayce J, Friedman RM, Jansen D, Mahadevan-Jansen A, **Roe AW** (2014) Infrared neural stimulation of primary visual cortex in non-human primates. Neuroimage, 84:181-190. [PMID: 23994125][PMC4120263] IF:5.463
- Ruiz O\*, Lustig B\*, Nassi JJ\*, Reynolds J, Callaway E, Albright T, Stoner G, **Roe AW** (2013) Optogenetics through windows on the brain in the nonhuman primate. J Neurophysiol, 110:1455-1467. [PMID: 23761700][PMC3763150] IF:2.653
- Wang Z, Negyessy L, Chen LM, Friedman RM, John Gore, **Roe AW** (2013) The relationship of anatomical and functional connectivity to resting state connectivity in primate somatosensory cortex. Neuron, 78(6):1116-26. [PMID: 23791200][PMC3723346] IF:13.974
- Commentary: Sporns O, Honey CJ (2013) Topographic dynamics in the resting brain. Neuron 78:1116-1126 IF:13.974
- Negyessy L, Palfi E, Ashaber M, Palmer C, Balazs J, Friedman RM, Chen LM, **Roe AW** (2013) Intrinsic horizontal connections process global haptic features in the primary somatosensory cortex: neuroanatomical evidence J Comp Neurol, 521:2798–2817. [PMID: 23436325][PMC4157923] IF:3.331
- Lustig B, Winberry J, Friedman R, Giber K, **Roe AW** (2013) Voltage sensitive dye imaging reveals shifting spatiotemporal spread of whisker-induced activity in rat barrel cortex. J Neurophysiol, 109:2382-2392. [PMID: 23390314][PMC 3652220] IF:2.653
- Chen GC, Wang F, Gore, JC, **Roe AW** (2013) Layer-specific BOLD activation in awake monkey V1 revealed by ultra-high spatial resolution functional magnetic resonance imaging. Neuroimage, 64:147-155. [PMID 22960152][PMC3508288] IF:5.463
- Rasch MJ, Chen M, Wu S, Lu HD, **Roe AW** (2012) Quantitative inference of population response properties across eccentricity from motion-induced maps in macaque V1. J Neurophysiol, 109(5):1233-49. [PMID: 23197457][PMC3602840] IF:2.653
- Fan RH, Baldwin MKL, Jermakowicz WJ, Casagrande VA, Kaas JH, **Roe AW** (2012) Intrinsic signal optical imaging evidence for dorsal V3 in the prosimian galago (*Otolemur garnetti*). J Comp Neurol, 520(18):4254-74. [PMID 22628051] [NIHMSID 448275][PMC3593310] IF:3.331
- Chen G, Wang F, Dillenburger CD, Friedman RM, Chen LM, Gore, JC, Avison MJ, **Roe AW** (2012) Functional magnetic resonance imaging of awake monkeys: some approaches for improving imaging quality. Magnetic Resonance Imaging 30(1):36-47. [PMID: 22055855][PMC3236665] IF:3.25
- Chen G, Wang F, Gore, JC, **Roe AW** (2012) Identification of cortical lamination in awake monkeys by high resolution magnetic resonance imaging. Neuroimage. 59(4):3441-9. [PMID: 2208015][PMC3288753] IF:5.463
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- Friedman RM, Dillenburger BC, Wang F, Avison MJ, Gore JC, **Roe AW**, Chen LM (2011) Methods for fine scale functional imaging of tactile motion in human and nonhuman primates. Open Neuroimaging Journal, 5:160-71. [PMID: 22253658][PMC3257843] IF:
- Cayce J, Friedman RM, Jansen D, Mahavaden-Jansen A, **Roe AW** (2011) Pulsed infrared light alters neural activity in rat somatosensory cortex in vivo. Neuroimage, 57(1):155-66. [PMID: 21513806][PMC3108823] IF:5.463
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- Mahadevan-Jansen A, Cayce JM, Friedman R, **Roe AW**, Konrad PE, Hillman E, Jansen E. (2010) Imaging optically induced neural activity in the brain. Conf Proc IEEE Eng Med Biol Soc. 1:3379-81. [PMID: 21097240][PMC3732797]
- Tanigawa H, Lu HD, **Roe AW** (2010) Functional organization for color and orientation in macaque V4. Nature Neurosci, 13(12):1542-8. [PMID: 21076422][PMC3005205] IF:16.724
- Lu HD, Chen GC, Tanigawa H, **Roe AW** (2010) A motion direction map in Macaque V2, Neuron, 68(5):1002-1013. [video link: <http://www.cell.com/neuron/videos>] [PMID: 21145011][PMC3391546] IF:13.974
- Hung CP, Ramsden BM, **Roe AW** (2010) Inherent biases in spontaneous cortical dynamics. Neuronal Variability and Its Functional Significance (Ding M, Glanzman HD, eds). Oxford Univ Press. IF:
- Kaskan PM, Dillenburger BC, Lu HD, **Roe AW**, Kaas JH (2010) Orientation and direction-of-motion response in the middle temporal visual area (MT) of New World owl monkeys as revealed by intrinsic-signal optical, Frontiers in Neuroanatomy, 4:23, pp 1-12. [PMID: 20661299][PMC2906256] IF:3.26
- Dillenburger BC, **Roe AW** (2010) Influence of parallel and orthogonal real lines on illusory contour perception. J Neurophysiol, 103:55-64. [PMID: 19864444][PMC2807237] IF:2.653
- Chen LM, Friedman RM, **Roe AW** (2009) Optical imaging of digit topography in individual awake and anesthetized squirrel monkeys. Exp Brain Res, 196:393-401. [PMID: 19484466][PM C3786732] IF:2.057
- Chen LM, Friedman RM, **Roe AW** (2009) Area-specific representation of mechanical nociceptive stimuli within SI cortex of squirrel monkeys. Pain, 141(3):258-68. [PMID: 19136211][PMC2680084] IF:5.557
- Lu HD\*, Chen G\*, Ts'o DY, **Roe AW** (2009) A rapid topographic mapping and eye alignment method using optical imaging in Macaque visual cortex. Neuroimage, 44:636-46. \*equal contributions. [PMID: 19013530][PMC2674020] IF:5.463
- Roe AW (2009) Imaging working memory in prefrontal cortex of macaque monkeys. Imaging the Brain with Optical Methods (Roe AW, ed). Springer, New York. IF:
- Kaskan PM, Lu HD, Dillenburger BC, Kaas JH, **Roe AW** (2008) The organization of orientation-selective, luminance-change and binocular-preference domains in the second (V2) and third (V3) visual areas of New World owl monkeys as revealed by intrinsic-signal optical imaging. Cereb Cortex, 19(6):1394-407. [PMID: 18842661][PMC2677652] IF:8.285
- Chen LM, Friedman RM, **Roe AW** (2008) Optical imaging of nociception in primary somatosensory cortex of non-human primates. Sheng Li Xue Bao 60(5):664-8. [PMID: 18958375]
- Friedman RM, Chen LM, **Roe AW** (2008) Responses of areas 3b and 1 in anesthetized squirrel monkeys to single and dual site stimulation of the digits. J Neurophysiol, 100(6):3185-96. [PMID: 18922955][PMC2604853] IF:2.653

- Roe AW** (2008) Optical imaging of visual feature representation in the awake, fixating monkey. In Advances in Cognitive Neurodynamics ICCN 2007: Proceedings of the International Conference on Cognitive Neurodynamics 2007. (Eds: Rubin Wang, Fanji Gu and Enhua Shen). Springer, New York. ISBN: 978-1-4020-8386-0. 18 IF:0.982
- Roe AW**, Chen LM (2008) High resolution fMRI maps of cortical activation in non-human primates: correlation with intrinsic signal optical images. ILAR Journal, National Research Council of the National Academies, 49(1):116-23. [PMID: 18172338][PMC2653868]
- Chen G, Lu HD, **Roe AW** (2008) A map of horizontal disparity in primate V2. Neuron, 58:442-450. [PMID: 18466753][PMC2441920] IF:13.974
- Kaskan PM, Lu HD, Dillenburger BD, **Roe AW**, Kaas JH (2007) Intrinsic-signal optical imaging reveals cryptic ocular dominance columns in primary visual cortex of New World owl monkeys. Frontiers in Neuroscience, 1:67-75. [PMID: 18974855][PMC 2518048] IF:
- Chen LM, Turner G, Friedman RM, Gore JC, **Roe AW**, Avison MJ (2007) High resolution maps of real and illusory tactile activation in SI: intra-individual correlation with fMRI, optical imaging and electrophysiology. J Neurosci, 27(34):9181-9191. [PMID: 17715354] IF:5.924
- Hung CP, Ramsden RM, **Roe AW** (2007) A functional circuitry for edge-induced brightness perception. Nature Neurosci, 10:1185-1190. [PMID: 17704775] IF:16.724  
<http://www.vanderbilt.edu/news/releases/2007/8/20/when-in-doubt-brain-relies-on-precise-timing-to-perceive-brightness>  
<http://www.physorg.com/news106849780.html>
- Lu HD, **Roe AW** (2008) Functional organization of color domains in V1 and V2 of Macaque monkey revealed by optical imaging. Cerebral Cortex, 18(3):516-33. *Cover figure*. [PMID: 17576751] [PMC2657473] IF:8.285
- Lu HD, **Roe AW** (2007) Optical imaging of contrast response in Macaque monkey V1 & V2. Cerebral Cortex 17(11):2675-95. [PMID: 17264252] IF:8.285
- Roe AW** (2007) Long-term optical imaging of intrinsic signals in anesthetized and awake monkeys. Applied Optics 46:1872-1880. [PMID: 17356633] IF:1.598
- Chen LM, Friedman RM, **Roe AW** (2005) Optical imaging of SI topography in anesthetized and awake squirrel monkeys. J Neurosci 25: 7648-7659. *Cover figure*. [PMID: 16107651][PMC 477931] IF:5.924
- Roe AW**, Fristches K, Pettigrew JD (2005) Optical imaging of functional organization in V1 and V2 of marmoset visual cortex. Anat Rec 287:1213-25. [PMID: 16235264] IF:1.507
- Roe AW**, Lu H, Hung CP (2005) Cortical processing of a brightness illusion. Proc Natl Acad Sci USA 102:3869-3874. [PMID: 15738406][PMC552782] IF:9.423
- Friedman RM, Chen LM, **Roe AW** (2004) Modality maps within primate somatosensory cortex. Proc Natl Acad Sci USA 101:12724-12729. [PMID: 15308779][PMC514661] IF:9.423
- Schwartz TH, Chen LM, Friedman RM, Spencer DD, **Roe AW** (2004) Intraoperative optical imaging of face topography in human somatosensory cortex. Neuroreport 15:1527-1532. *Cover figure*. [PMID: 15194889] IF:1.343
- Chen LM, Friedman RM, **Roe AW** (2003) Optical imaging of a tactile illusion in Area 3b of primary somatosensory cortex. Science 302:881-885. [PMID: 14500850] IF:34.661  
*Commentary*: Eysel UT (2003) Illusions and perceived images in the primate brain. Science 31:789-791.  
See <http://www.earthsky.com/shows/edgeshow.php?t=20040331>.
- Hung CP, Ramsden BM, **Roe AW** (2002) Weakly-modulated spike trains: significance, precision, and correction for sample size. J Neurophysiol 87: 2542-2555. [PMID: 11976390]IF:2.653

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- Chen LM, Friedman RM, Ramsden BM, LaMotte RH, **Roe AW** (2001) Fine-scale organization of primary somatosensory cortex (Area 3b) in the squirrel monkey revealed with intrinsic optical imaging. J Neurophysiology 86:3011-3029. [PMID: 11731557]IF:2.653
- Ramsden BM, Hung CP, **Roe AW** (2001) Real and illusory contour processing in Area V1 of the primate – a cortical balancing act. Cerebral Cortex 11:648-665. [PMID: 11415967] 18 IF:8.285
- Ts'o DY, **Roe AW**, Gilbert CD (2001) A hierarchy of the functional organization for color, form and disparity in primate visual area V2. Vision Research 41:1333 - 1349. [PMID: 11322978] IF:1.776
- Hung CP, Ramsden BM, Roe AW (2001) Building surfaces from borders in Areas 17 and 18 of the cat. Vision Research 41:1389 - 1407. [PMID: 11322982] IF:1.776
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- Roe AW**, Ts'o DY (1999) Specificity of color connectivity between primate V1 and V2. J Neurophysiol 82:2719-2731. [PMID: 10561440] IF:2.653
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- Roe AW**, Ts'o DY (1995) Visual topography in primate V2: multiple representation across functional stripes. J Neurosci 15:3689-3715. [PMID: 7751939] IF:5.942
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- White WF, O'Gorman S, **Roe AW** (1990) Three-dimensional autoradiographic localization of quench-corrected glycine receptor specific activity in the mouse brain using 3H-strychnine as the ligand. J Neurosci, 10:795-813. [PMID: 1690790] IF:5.942

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#### REVIEW ARTICLES, BOOK CHAPTERS, AND BOOKS (13)

- Devor A, **Roe AW**, Mahadevan-Jansen, Boas DA (2014) The BRAIN Initiative. Neurophotonics.1(1):011001. Editorial. [PMID: 26157962] [PMC4489344]
- Roe AW**, Chelazzi L, Connor CE, Conway BR, Fujita I, Gallant J, Lu H, Vanduffel W (2012) Towards a unified theory of visual area V4. Neuron, 74(2):12-29. [PMID: 22500626][PMC2376798] IF:13.974
- Roe AW** (2009) Imaging the Brain with Optical Methods (Roe AW, ed). Springer, New York. IF:0.982
- Roe AW**, Lu HD, Chen G (2009) Visual System: Functional architecture of Area V2. The Encyclopedia of Neuroscience (Squire L, ed.), Vol 10, pp. 331-349. Elsevier, Oxford, UK.
- Roe AW**, Parker AJ, Born RT, DeAngelis GC (2007) Disparity channels in early vision: a mini-review. J Neurosci, 27:11820-11831. *Cover figure*. [PMID: 17978018][PMC2376798] IF:5.942
- Roe AW**, Chen LM, Friedman RM (2007) Intrinsic signal imaging of somatosensory function in non-human primates. The Senses: A Comprehensive Reference, Vol 6: Somatosensation (Eds Allan Basbaum et al). Elsevier, Oxford, UK. (ISBN: 9780126394825)  
[http://www1.elsevier.com/homepage/about/mrwd/snse/table\\_of\\_contents.htm](http://www1.elsevier.com/homepage/about/mrwd/snse/table_of_contents.htm)
- Roe AW**, Friedman RM, Chen LM (2007) Multiple Representation in Primate SI: A View From A Window on the Brain. In Handbook of Neurochemistry and Molecular Neurobiology: Sensory Neurochemistry, Vol 26 (Johnson D, Lajtha A, eds). Springer, New York NY, pp. 1-16. IF:0.982
- Roe AW** (2004) Long-term optical imaging of intrinsic signals in anesthetized and awake monkeys. In: Visualizing large-scale patterns of activity in the brain: optical and electrical signals. (Buzsaki G ed) pp 34-42. Washington DC: Society for Neuroscience. IF:5.942
- Roe AW** (2003) Modular complexity of Area V2 in the Macaque monkey. In The Primate Visual System (Collins C, Kaas J, eds.). CRC Press, New York NY, pp 109-138.
- Roe AW**, Ts'o DY (1997) The functional architecture of Area V2 in the Macaque monkey. In Cerebral Cortex, Vol. 12: Extrastriate Cortex in Primates (Rockland K, Kaas JH, Peters A, eds.). Plenum Press, New York, pp. 295-333.
- Ts'o DY, **Roe AW** (1995) Functional compartments in visual cortex: segregation and interactions. In The Cognitive Neurosciences (Gazzaniga MS, ed.). M.I.T. Press, Cambridge, MA, pp. 325-337.
- Ts'o DY, **Roe AW** (1994) The organization and connectivity of color processing in visual cortex. Symposium for Otto Creutzfeldt. Springer-Verlag (Nothdruff C., ed.).
- Sur M, Pallas SL, **Roe AW** (1990) Cross-modal plasticity in cortical development: differentiation and specification of sensory neocortex. Trends in Neurosci 13:227-233. [PMID: 1694329] IF:12.504



Roe AW (symposium organizer), Romo R, Hsiao S, Kaas J (2010) The power of touch. Current Issues In Developmental Psychobiology Manzanillo, Mexico.

## NEWS

O'meara S (2015) At the very heart of progress. Nature. 2015 Dec 17; 528(7582):S179-81. doi: 10.1038/528S179a. Includes interview with Anna Wang Roe regarding science progress at Zhejiang University in Hangzhou, China.

## CONFERENCE & SYMPOSIUM ORGANIZER

### CONFERENCE ORGANIZER

- Roe AW (2017) Conference organizer. Frontiers in Neuroscience & Technology 2017: Sensation & Emotions. Hangzhou, China.
- Roe AW (2017) Conference organizer. Asia-Pacific Workshop on Advances in UHF MRI. Hangzhou, China.
- Roe AW (2016) Conference organizer. Ultrahigh Field Conference. May 2-3, 2017. Hangzhou, China.
- Roe AW (2016) Conference organizer. West Lake Ultrahigh Field Conference. Dec 10, 2016. Hangzhou, China.
- Roe AW (2016) Conference organizer or Auditor. Frontiers in Neuroscience and Technology 2016. Hangzhou, China.
- Roe AW (2015) Conference organizer. Frontiers in Neuroscience and Technology 2015. Hangzhou, China.

### SYMPOSIUM ORGANIZER

- Roe AW (2016) Symposium organizer on Primate Cognition. EMBO Conference 2016. Taipei, Taiwan.
- Roe AW (2015) Program organizer: Neurophotonics. SPIE Photonics West, San Francisco CA.
- Roe AW (2014) Program organizer: Neurophotonics. SPIE Photonics West, San Francisco CA.
- Roe AW, Usuda Adachi, Wim Vanduffel, Bas Neggers (2013) Chair and organizer: Resting state connectivity: views from nonhuman primates. Organization for Human Brain Mapping, Seattle, WA.
- Roe AW (2012) Chair and organizer: Primate optogenetics nanosymposium. Soc Neurosci Meeting, New Orleans, LA.
- Roe AW (2011) Chair and organizer: Spatiotemporal profiles of cortical processing: a view from optical imaging studies in awake, behaving nonhuman primates, International Brain Research Organization Meeting, Florence, Italy.
- Roe AW (2010) Symposium organizer. Symposium on Visual Function and Neuroimage/fMRI. Fourth Shanghai International Conference on Biophysics and Molecular Biology. Shanghai, China.
- Roe AW (2009) 'What is V4?' Nanosymposium organizer. Soc Neurosci Meeting, Chicago, IL.
- Shou T, Roe AW (2007) Co-organizer of "Visual cortex: information processing and dynamics". International Conference on Cognitive Neurodynamics, Shanghai, China.
- Roe AW (2003) Workshop speaker and organizer. "Columnar Interactions in Neural Computation" Swindale N, Tanifuji M, Hung C, Cohen L. Winter Conference on Brain Research, Snowbird, Utah.
- Roe AW (2002) Vision social organizer. 2002 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2002. CD-ROM.
- Roe AW (2002) Science and Technology Panel. Family Issues Panel. Dinner with Anna Roe. Renaissance Weekend, Hilton Head, SC.
- Roe AW, Wilson M, Garner C, Korte M, Rotter S (2001) Learning and Memory (Organizer). German-American Frontiers of Science Symposium. Frankfurt, Germany.



- Roe AW, Schwartz A, Meyer U, Rotter S (2000) Neural Prostheses (Organizer). German-American Frontiers of Science Symposium. Irvine, CA.
- Roe AW, Kaas JH, Recanzone GG, Hahm J, Montague PR (1994) (organizer) New views of cerebral cortical topography: discontinuities, non-topographies, and time-varying topographies. Winter Conference on Brain Research, Snowbird, Utah.

## RECENT CONFERENCES

(2013-2017)

- Friedman RM, Chernov MM, Zaraza DG, Roe AW (2017) Intrinsic signal optical imaging with intracortical microstimulation reveals specific intracortical circuitry within somatosensory cortex. Soc Neurosci Abstr, Washington DC.
- Chernov MM, Friedman RM, Roe AW (2017) Mapping visual cortical processing networks with infrared neural stimulation. Soc Neurosci Abstr, Washington DC.
- Xu AG, Zhao A, Roe AW (2017) Cortical magnification factors within 0.5 degree eccentricity in rhesus monkeys. Soc Neurosci Abstr, Washington DC.
- Pei L, Edathodathil A, Wang X, Peng L, Roe AW (2017) Optical Coherence Tomography (OCT) reveals depth-resolved responses during functional cerebral activation by infrared neural stimulation. Soc Neurosci Abstr, Washington DC.
- Roe AW, Neuringer M, Friedman RM, McGill T, Chernov M, Renner L, Zaraza D (2017) Neural development of Macaque monkey foveal vision. Oregon Chapter of Soc for Neurosci Meeting. Edgefield OR.
- Jiang Y, Yue Y, Ye R, Shen T, Roe AW, Zhang B, Lai H-Y (2017) Resting-state functional connectivity reveals the pattern of primary somatosensory cortex in sensorimotor circuit in Parkinson's disease. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.
- Gao Y, Chen W, Tian J, Sun Y, Chen G, Roe AW, Zhang X (2017) Mixed dipole and loop coil for macaque brain imaging at 7T: a simulation study. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.
- Chen W, Peng B, Sun Y, Chen G, Roe AW, Dai Y, Zhang X (2017) Subject-specific 3D modeling of Macaque brain via automatic tissue registration based on *in vivo* MR images acquired at 7T. International Soc Magnetic Reson & Medicine. Honolulu, Hawaii.
- Roe AW (2017) High Spatial Resolution Brain Imaging at Ultrahigh Fields. Huashan International Glioma Summit. Shanghai, China.
- Roe AW (2017) Modular monkey connectome. Xiang Shan Meeting on Nonhuman Primate Brain and Cognition. Shenzhen, China.
- Roe AW (2016) Towards a functionally specific optical brain machine interface for vision. Interdisciplinary Frontiers of Cognitive Neuroscience. Guangzhou, China.
- Li M, Xu T, Song XM, Roe AW, Hu D, Li CY (2016) Spatial summation sub-compartments embedded within the pinwheel-like-orientation column of the primary visual cortex. Soc Neurosci Meeting. San Diego, CA.
- Roe AW (2016) Selective enhancement of functional domain networks by attention in macaque V4. Gordon Conference on Neurobiology of Cognition. Sunday River Newry, Maine.
- Chernov M, Friedman RM, Chen G, Stoner G, Roe AW (2016) Functionally specific optogenetic modulation in primate visual cortex. Beijing Vision Science Conference 2016, Beijing, China.
- Ashaber M, Pálfi E, Friedman RM, Kántor O, Kovács T, Stuber I, Roe AW, Négyessy L (2016) Ultrastructural properties of large neuronal endings in the primate somatosensory cortex. Federation European Neuroscience Society, Copenhagen, Denmark.
- Pálfi E, Zalányi L, Ashaber M, Palmer C, Friedman RM, Roe AW, Négyessy L (2016) Intrinsic and interareal connections in primate somatosensory cortex. Federation European Neuroscience Society, Copenhagen, Denmark.
- Zhang YF, Tanigawa H, Yang SR, Friedman R, Roe AW (2016) Attentional enhancement of stimulus activation domains in Macaque V4. Vision Sciences Society Meeting, Sarasota, FL.
- Chernov M, Friedman RM, Chen G, Stoner G, Roe AW (2016) Functionally specific optogenetic modulation in primate visual cortex. NeuroFutures 2016, Seattle WA.

- Roe AW (2016) Introduction to ZIINT.at ISMRM China Night. International Society of Magnetic Resonance in Medicine, Singapore.
- Roe AW (2016) MRI Studies of Brain Organization and Function in Nonhuman Primates. Workshop on Magnetic Resonance Imaging @ ZJU. Hangzhou, China.
- Roe AW (2016) Discussion Leader. Future Primate Neuroscience Symposium. Shenzhen, China.
- Roe AW (2016) Looking forward in the year of the monkey. Zhejiang University Medical School & ZIINT Retreat. Hangzhou, China.
- Roe AW (2016) Towards a connectional theory of brain function. IBRO Workshop 2016, Budapest, Hungary.
- Négyessy L, Pálfi E, Ashaber M, Zalányi L, Palmer C, Friedman RM, Kántor O, Roe AW (2015) Complementary role of intra- and inter-areal cortical connections in somatosensory processing in primates. Soc Neurosci Meeting, Chicago IL.
- Roe AW (2015) Mapping columnar networks and cytoarchitecture in nonhuman primates. NeuroFutures2015, Portland OR.
- Roe AW (2015) The monkey connectome project: towards a connectional theory of brain function. Francis Crick Symposium: Advances in Neuroscience, Cold Spring Harbor Asia, Suzhou, China.
- Torre-Healy L, Chernov MM, Chen G, Roe AW (2015) Functional tract tracing in awake monkeys using implanted electrode arrays and optical imaging: a new approach to studying cortical circuitry and behavior. Organization Human Brain Mapping, Honolulu, Hawaii.
- Roe AW, Chernov MM, Chen G, Friedman RM (2015) Infrared neural stimulation: a new stimulation tool for CNS applications. Brain Stim 2015, Honolulu, Hawaii.
- Ashaber M, Pálfi E, Friedman RM, Kántor O, Kovács T, Stuber I, Roe AW, Négyessy L (2015) Ultrastructural characterization of postcentral somatosensory cortical synapses in primates: a 3D analyses. Hungarian Neuroscience Society Conference, Budapest, Hungary.
- Pálfi E, Ashaber M, Zalányi L, Palmer C, Friedman RM, Kántor O, Roe AW, Négyessy L (2015) Comparisons of intrinsic and associative connections of the primate somatosensory cortex. Hungarian Neuroscience Society Conference, Budapest, Hungary.
- Roe AW (2014) Optical methods in brain-machine interface. International Workshop on Brain Technology Initiative. Shanghai, China.
- Roe AW (2014) A multimodal high spatiotemporal resolution recording and stimulation approach to study brain and behavior. Annual West Lake Forum. Hangzhou, China.
- Gharbawie O, Friedman RM, Roe AW (2014) Localization of grasp domains in frontal and parietal cortex with intrinsic optical imaging in behaving monkeys. Soc Neurosci Meeting, Washington DC.
- Chernov M, Roe AW (2014) Optogenetic stimulation of monkey primary visual cortex. Soc Neurosci Meeting, Washington DC.
- Friedman RM, Stepienewska I, Roe AW, Kaas JH (2014) Intracortical microstimulation reveals movement specific domains in awake squirrel monkeys. Soc Neurosci Meeting, Washington DC.
- Nassi J.J., Avery, M.C., Cetin, A.H., Roe, A.W., Reynolds, J.H. (2014) Normalization through local excitation and inhibition in macaque primary visual cortex. Soc Neurosci Meeting, Washington DC.
- Roe AW (2014) High spatial resolution brain imaging and targeted stimulation in nonhuman primates. The 37th Naito Conference, Hokkaido, Japan.
- Roe AW (2014) High spatial resolution brain imaging in nonhuman primates. Siemens MR Experts Meeting, Zhongshan Hospital, Fudan University. Shanghai, China.
- Roe AW (2014) Moderator. Neuroeconomics in China and Asia: Building Interest and Capacity. 14<sup>th</sup> Kavli Futures Symposium. Shanghai, China.
- Nassi J\*, Cetin A, Roe AW, Callaway E, Deisseroth K, Reynolds J (2013) Minimally-Invasive Optogenetics in the Non-Human Primate. 6th International IEEE EMBS Conference on Neural Engineering, San Diego, CA.
- Ruiz O, Callaway E, Albright T, Roe AW, Lustig B\*, Stoner G (2013) Optogenetics, electrophysiology and optical-imaging through windows on the brain in nonhuman primates. Neuroinformatics 2013, Stockholm, Sweden.
- Roe AW, Chen G, Cayce JM, Ye X, Jansen ED, Mahadevan-Jansen A (2013) Infrared neural stimulation of visual cortex induces visual perception in awake non-human primates. Soc Neurosci Meeting, San Diego, CA.
- Nassi JJ, Cetin AH, Roe AW, Reynolds JH (2013) Neural circuit mechanisms underlying competitive stimulus interactions in alert primate visual cortex. Soc Neurosci Meeting, San Diego, CA.

- Kudyba KA, Friedman RM, Gharbawie O, Roe AW (2013) Optical imaging of electrical stimulation in somatosensory and motor cortices: a novel approach to tracing functional connectivity. Soc Neuroci Meeting, San Diego, CA.
- Gharbawie O, Friedman RM, Roe AW (2013) Reach and grasp domains identified in frontal and parietal cortex with intrinsic optical imaging in behaving monkeys. Soc Neuroci Meeting, San Diego, CA.
- Roe AW (2013) Two classes of cortical transformations: Views from visual and somatosensory cortex. International Neuropsychological Symposium (INS), Nerja, Spain.
- Roe AW, Wang Z, Chen LM, Negyessy L, Friedman RM, Mishra A, Gore JC (2013) The relationship of anatomical and functional connectivity to resting state connectivity in primate somatosensory cortex. Organization Human Brian Mapping, Seattle, WA.
- Kudyba K, Friedman RM, Roe AW (2013) Optical imaging of inter-areal connectivity evoked by electrical stimulation in somatosensory and motor cortices. 16<sup>th</sup> Quadrenniel Meeting of the World Society of Functional and Stereotactic Neurosurgery (WSSFN), Tokyo, Japan.
- Moore BS, Chen M, Lu HD, Roe AW (2013) Functional architecture of the foveal confluence in macaque visual cortex. Vision Sciences Society, Naples, FL.
- Roe AW (2013) What does functional organization offer? Views from visual and somatosensory cortex. Cosyne, Salt Lake City, Utah.
- Chernov M, Chen G, Roe AW (2013) Histological assessment of thermal damage thresholds for infrared neural stimulation of the brain. SPIE Photonics West, San Francisco, CA.
- Chen G, Cayce JM, Ye X, Jansen ED, Mahadevan-Jansen A, Roe AW (2013) Optical control the visual perception of awake non-human primate with infrared neural stimulation. SPIE Photonics West, San Francisco, CA.
- Nassi JJ, Cetin AH, Roe AW, Reynolds JH (2013) A precise and minimally-invasive approach to optogenetics in the awake primate. SPIE Photonics West, San Francisco, CA.

## **AWARDS and HONORS**

- |           |  |
|-----------|--|
| 2015      | AAAS Fellow  |
| 2013      | 1000 Faculty Award, China  |
| 2008      | Vanderbilt University International Grant "Exploring potential for conducting nonhuman primate brain research in China"        |
| 2007      | Vanderbilt University College of Arts & Sciences Travel Award  |
| 2005-2007 | Vanderbilt Discovery Grant: "Optical Imaging of Short-term Working Memory in Prefrontal Cortex of the Macaque Monkey" \$30,000 |
| 2004      | Vanderbilt University College of Arts & Sciences Travel Award  |
| 1998-2003 | David and Lucile Packard Foundation Fellowship   |
| 1997-1999 | Alfred P. Sloan Research Fellowship.   |
| 1996-1999 | Whitehall Foundation Research Fellowship   |
| 1991-1994 | NIH NRSA Post-doctoral Fellowship, Rockefeller Univ and Baylor College of Medicine.  |
| 1993      | Winter Conference on Brain Research Fellowship Award, Whistler, Canada.  |
| 1992      | Center for Visual Science Symposium Travel Fellowship, Rochester, NY.  |
| 1989-1991 | Whittaker Health Sciences Fellowship, M.I.T.   |
| 1986-1989 | NIGMS Graduate Traineeship, M.I.T.   |
| 1987      | Gordon Research Conference Scholarship.  |
| 1985-1986 | NIGMS Graduate Traineeship, Yale University.   |
| 1984-1986 | NIGMS Graduate Traineeship, Harvard University.  |

## SERVICE

### ACADEMIC SERVICE

#### Grant Reviews

2011 – 2017 NIH study section, Sensorimotor Integration, member  
2009 NIH study section, ad hoc  
2006 NIH special review committee  
2005 NIH special review committee  
2002 NSF Cognitive Neuroscience Study Section, ad hoc  
2000-2005 NIH IFCN-8 (COG) Study Section, member

#### Site Visit Reviews

June 2007 NIH/NIMH Board of Scientific Counselors review committee (ad hoc).  
Oct 2006 NIH/NICHHD Site visit member.

#### Editorships, manuscript & abstract reviews

2017 - Advisory Editorial Board, TINS  
2016 - Assoc Editor, Network Neuroscience,  
2014 - 2015 Special Issue Editor, Visual Neuroscience  
2013 – present Assoc Editor, Neurophotonics  
2013 – present Editor, Neuroimage  
2012 – present OHBM abstract review committee  
2010 – present Assoc Editor, Frontiers in Integrative Neuroscience  
2007 - present Editor, Frontiers in Systems Neuroscience  
2003 - 2014 Assoc Editor, Neuroscience Letters  
2006 Optical Soc America abstract review committee  
2003 – 2011 Vision Sciences Society abstract review committee  
9/96 – present Ad hoc reviewer for Neuron, Nature Neuroscience, Current Biology, J Neuroscience, J Neurophysiology, Neuroimage, Vision Research, PNAS, Frontiers of Neuroscience, J Neurosci Methods, Cerebral Cortex, American J Physiology, European J Neuroscience, BMC Journals, PLOS Biology, Attention Perception & Psychophysics, J Cereb Blood Flow & Metabolism, Neuroscience Letters, Neuroreport

#### Other

2012 - present Advisory committee to McGovern Institute at Beijing University, Beijing China.  
2011 – present SFN Peter Gruber International Research Award Selection Committee  
2008 - present Advisory committee to Systems Neuroscience Program at Tsinghua University, Beijing China.  
1999-2001 German-American Frontiers of Science Symposia (Organizer and Participant)  
2003 - present Ad hoc reviewer on funding applications and promotion reviews for investigators from Europe, Asia, Australia.