

CURRICULUM VITAE

Claudia D. Tesche, Ph.D

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DEGREES

B.A. Physics, University of California, Berkeley, USA 1965
M.A. Physics, University of California, Berkeley, USA 1971
Ph.D. Physics, University of California, Berkeley, USA 1979

RESEARCH AND PROFESSIONAL EXPERIENCE

1965–1966: Teaching Assistant, University of California, Berkeley, CA, USA
1966–1968: Professor of Physics, Universidad de Pereira, Colombia, S.A.
1968–1970: Teaching Assistant, University of California, Berkeley, CA, USA
1970–1971: Research Assistant, University of California, Berkeley, CA, USA
1975–1979: Research Assistant, University of California, Berkeley, CA, USA
1979–1979: Research Scientist, Applied Physics Systems, Palo Alto, CA, USA
1979–1981: Research Staff, LuTec, Berkeley, CA, USA
1981–1993: Research Staff Member, IBM, Yorktown Heights, NY, USA
1996–1997: Guest Professor, Department of Psychology, University of Salzburg, Austria
1991–1992: Senior Scientist, LTL, Helsinki University of Technology, Espoo, Finland
1992–2000: Visiting Professor, Helsinki University of Technology, Espoo, Finland
2000– present: Professor, Department of Psychology, University of New Mexico, USA
2000– present: Adjunct Professor, Department of Neurosciences, University of New Mexico, USA
2000–2006: Area Head, Doctoral Program Cognition, Brain and Behavior, Department of Psychology, University of New Mexico
2012– present: Director, Transcranial Stimulation Laboratory, Department of Psychology, University of New Mexico, USA

HONORS AND PRIZES:

NSF Graduate Fellowship: 1965 (honorable mention)
IBM First Invention Achievement Award, 1986
IBM Second Invention Achievement Award, 1991
IBM First Patent Award, 1991
Fellowship McDonnell-Pew Center for Cognitive Neuroscience 1994
Fellow: American Physical Society, 1994 *“For work in understanding noise and the limits of sensitivity of superconducting quantum interference devices and their application in neuromagnetism”*
Honorary Doctorate: Aalto University, Espoo, Finland, 2014

The MIND Institute Tesche (PI) 01/01/2001 – 12/31/2001
“MEG and Temporal Information Processing”
The goal is to study brain dynamics in MEG during entrained movement, attention, aversive conditioning and spatial working memory.
Role: PI

The MIND Institute Aine (PI) 01/01/2002 – 12/31/2002
“Studies of Information Processing in Normal Subjects”
The goal is to study brain dynamics in MEG during entrained movement, attention, aversive conditioning and spatial working memory.
Role: Co-PI

NSF Yates (PI) 01/01/2003 – 09/31/2005
“Southwest Center for the Science of Learning”
The goal is to develop a cross-disciplinary effort to investigate individual differences in learning. My project involves a combined MEG/EEG/TMS study of learning.
Role: Co-P.I.

The MIND Institute Tesche (PI) 01/01/2003 – 12/31/2003
“Magnetoencephalographic Studies of Information Processing in Normal Subjects”
The goal is to characterize brain dynamics during entrained movement, attention, aversive conditioning and spatial working memory using magnetoencephalography (MEG).
Role: PI

The MIND Institute Tesche (PI) 01/01/2004 – 12/31/2004
“Magnetoencephalographic Studies of Information Processing in Normal Subjects”
The goal is to characterize brain dynamics during entrained movement, attention, aversive conditioning and spatial working memory using magnetoencephalography (MEG).
Role: PI

NIH Weisend (PI) 07/01/2005 – 06/31/2007
“A new way to study cortical networks in working memory”
The goal is to investigate a new way of using magnetoencephalography (MEG) to characterize brain dynamics during performance of working memory tasks.
Role: Consultant

The MIND Institute Tesche (PI) 01/01/2005 – 12/31/2005
“Magnetoencephalographic Studies of Information Processing in Normal Subjects”
The goal is to characterize brain dynamics during entrained movement, attention, aversive conditioning and spatial working memory with magnetoencephalography (MEG).
Role: PI

NIH/NIAAA Thoma (PI) 10/01/2006 – 10/1/2011
“Brain and behavior Impairment in Alcohol Dependence and Schizophrenia”
The goal is to use multiple neuroimaging methods to study alcohol dependence and schizophrenia.
Role: Mentor

Sandia National Laboratory Schwindt (PI) 10/1/2007 – 09/29/2010
“Atomic Magnetometer for Human Magnetoencephalography”

The goal is to build a magnetometer based on the spin precession of alkali atoms for application to human magnetoencephalography.

Role: Investigator

DARPA NBCHC070103 Clarke (PI) 06/25/2007 – 01/31/2008

“Brain Stimulation to Accelerate Learning of Threat Detection”

The goal is to enhance threat detection through the use of transcranial direct current stimulation.

Role: Investigator

1 P20 AA017068-01 Savage (PI) 07/1/2008 – 06/30/2013

“Fetal Ethanol-induced Behavioral Deficits: Mechanisms, Diagnoses and Intervention”

This Exploratory/Developmental Center Grant is for the development of a multidisciplinary program: The New Mexico Alcohol Research Center. Component 6 will involve a behavioral and magnetoencephalographic (MEG) study of the effects of a motor training intervention on manual sequencing in children with FASD.

Role: Investigator

P20RR021938 Calhoun (PI) 07/01/2008 – 06/30/2013

“Neural Mechanisms of Schizophrenia: Use of Multiple Neuroimaging Tools to Examine Dysfunctions in Neural Integration”

The goal is to utilize multiple neuroimaging methods to characterize neurophysiological and genetic factors which contribute to schizophrenia.

Role: Mentor

1R21DA025135 Tesche (PI) 06/01/2009 – 05/31/2012

“The Neuroscience of Motivational Interviewing Change Talk”

The goal is to characterize the neurophysiological basis for motivational interviewing (MI), a directive, client-centered therapeutic method for the treatment of substance abuse, using MEG.

Role: PI

5 U24 AA014811-06 Riley (PI) 11/30/2009 – 07/30/2013

“Collaborative Initiative on Fetal Alcohol Spectrum Disorders (CIFASD)”

“Developmental Project: Network Connectivity and Dynamics in FASD”

The goal of the developmental project is to characterize brain network dynamics using magnetoencephalography (MEG) in adolescents with FASD.

Role: PI on developmental sub-award

G20RR030839 Ortega (PI) 04/01/2010 – 03/31/2015

“Clinical Neuroscience Core Renovation for Psychology at University of New Mexico”

The goal is to renovate laboratory and office space in the clinical neuroscience area, including the purchase and support of a stereotactic transcranial magnetic stimulation (TMS) and transcranial direct current (tDCS/tACS) facility.

Role: Director, Transcranial Stimulation Laboratory

UNM/MRN RAC (Tesche) 01/17/2013 – 07/31/2014

University of New Mexico

Mind Research Network

Modulating Attention with Transcranial Stimulation

The goal is to utilize transcranial stimulation to modulate global/local attention.

Role: PI

SUMMARY OF RESEARCH

Professor Tesche received a Ph.D. in Physics from the University of California, Berkeley, followed by ten years as a research scientist at the IBM T.J. Watson Research Laboratory in Yorktown Heights, NY. Her thesis was on the noise and optimization of dc SQUIDS (superconducting quantum interference devices). At IBM, her research interests included the use of SQUID sensors to investigate topics in the foundations of quantum mechanics and the imaging of neuronal activity in brain slices. Dr. Tesche initiated a joint project between IBM and the Helsinki University of Technology to develop multichannel DC SQUID-based magnetoencephalographic (MEG) arrays. She spent eight years in Finland utilizing the first whole-scalp MEG array to characterize human brain dynamics, with a particular interest in frequency-domain analysis of oscillatory activity and the detection of MEG signals from deep brain structures. Dr. Tesche joined the Department of Psychology at the University of New Mexico as Professor in 2000. She is presently serving as the Director of the Transcranial Stimulation Laboratory. Her present research interests include MEG characterization of network dynamics in adolescents with fetal alcohol spectrum disorder (FASD), and the use of transcranial direct current stimulation (tDCS) and transcranial alternating current stimulation (tACS) on brain dynamics and visual attention, and the application of transcranial magnetic stimulation (TMS) to investigate the effects of tACS on brain function.

MOST SIGNIFICANT PUBLICATIONS

Theory and Optimization of DC SQUID Magnetometers

"DC SQUID: Noise and Optimization", **C.D. Tesche** and J. Clarke, *J. Low Temp. Phys.* **29**, 304 (1977).

"A Thermal Activation Model for Noise in the DC SQUID", **C.D. Tesche**, *J. Low Temp. Phys.* **44**, 119 (1979).

"Parameter Fluctuations and Low Frequency Noise in Josephson Junction Devices", **C.D. Tesche**, *Appl. Phys. Lett.* **41**, 99 (1982).

"Optimization of dc SQUID Linear Amplifiers and the Quantum Noise Limit", **C.D. Tesche**, *Appl. Phys. Lett.* **41**, 490 (1982).

Applications of DC SQUIDS to the Quantum Theory of Measurement

"Schroedinger's Cat is out of the Hat", **C.D. Tesche**, *Science* **290**, 720 (2000).

"Can a Noninvasive Measurement of Magnetic Flux be Performed with Superconducting Circuits?", **C.D. Tesche**, *Phys. Rev. Lett.* **64**, 2358 (1990).

"Macroscopic Quantum Coherence: An Experimental Strategy", **C.D. Tesche**, *Superconducting Quantum Interference Devices and their Applications*, H.D. Hahlbohm and H. Lübbig, Eds., Walter de Gryter (1985).

"*Measurement of the Intrinsic Sub-gap Dissipation in Josephson Junctions*", J.R. Kirtley, **C.D. Tesche**, W.J. Gallagher, A.W. Kleinsassar, R.L. Sandstrom, S.I. Raider, and M.P.A. Fisher, *Phys. Rev. Lett.* **61**, 2372 (1988).

Development of MEG Hardware and Analysis Methods

"*Detecting Activity from Deep Brain Areas with MEG Arrays*", **C.D. Tesche**, *Biomedizinische Technik* **42**, 60–63 (1997).

"*Signal-space projections of MEG Data Characterize both Distributed and Well-localized Neuronal Sources*", **C.D. Tesche**, M.A. Uusitalo, R.J. Ilmoniemi, M. Huottilainen, M. Kajola and O. Salonen, *Electroenceph. Clin. Neurophysiol.* **95**, 189–200 (1995).

"*122-channel SQUID Instrument for Investigating the Magnetic Signals from the Human Brain*", A.I. Ahonen, M.S. Hämäläinen, J.E.T. Knuutila, M.J. Kajola, P.P. Laine, O.V. Lounasmaa, L.T. Parkkonen, J.T. Simola and **C.D. Tesche**, *Physica Scripta* **T49**, 198-205 (1993).

"*A 24-SQUID Gradiometer for Magnetoencephalography*", S. Ahlfors, A. Ahonen, G. Ehnholm, M. Hämäläinen, R. Ilmoniemi, M. Kajola, M. Kiviranta, J. Knuutila, O. Lounasmaa, J. Simola, **C. Tesche**, and V. Vilkmán, *Physica B* **165 & 166** p. 97 (1990).

"*Large-area Low-noise Seven-channel dc SQUID Magnetometer for Brain Research*", J. Knuutila, S. Ahlfors, A. Ahonen, J. Hallstrom, M. Kajola, O.V. Lounasmaa, V. Vilkmán, and **C.D. Tesche**, *Review of Scientific Instruments* **58**, (11) 2145–2156 (1987).

"*Practical dc SQUIDS with Extremely Low 1/f Noise*", **C.D. Tesche**, K.H. Brown, A.C. Callegari, M.M. Chen, J.H. Greiner, H.C. Jones, M.B. Ketchen, K.K. Kim, A.W. Kleinsasser, H.A. Notarys, G. Proto, R.H. Wang, and T. Yogi, *IEEE Trans. Magn.* **MAG-21**, 1032 (1985).

Investigations of Neuronal Dynamics in Human Hippocampus and Amygdala

"*Theta Oscillations Index Human Hippocampal Activation During a Working Memory Task*", **C.D. Tesche** and J. Karhu, *PNAS* **97** (2), 919–924 (2000).

"*Interactive Processing of Sensory Input and Motor Output in Human Hippocampus*", **C.D. Tesche** and J. Karhu, *J. Cogn. Neurosci.* **11** (4), 424-436 (1999).

"*Non-invasive Detection of Ongoing Neuronal Population Activity in Normal Human Hippocampus*", **C.D. Tesche**, *Brain Res.* **749**, 53–60 (1997).

"*Non-invasive Detection of Neuronal Population Activity in Human Hippocampus*", **C.D. Tesche**, J. Karhu and S.O. Tissari, *Cogn. Brain Res.* **4**, 39–47 (1996).

"*Simultaneous Measurement of Magnetic and Electrical Response of in vitro Hippocampal Slices*", **C.D. Tesche**, L. Krusin-Elbaum and W.D. Knowles, *Brain Res.* **462**, 190 (1988).

"*Dynamic neural activity recorded from human amygdala during fear conditioning using magnetoencephalography*", S.N. Moses, J.M. Houck, T. Martin, F.M. Hanlon, J.D. Ryan, R.J.

Thoma, M.P. Weisend, E.M. Jackson, E. Pekkonen, **C.D. Tesche**, *Brain Research Bulletin* **71(5)**, 452-60 (2007). Epub 2006 Nov 20.

"Bilateral hippocampal dysfunction in schizophrenia", F.M. Hanlon, J.M. Houck, C.J. Pyeatt, S.L. Lundy, M.J. Euler, M.P. Weisend, R.J. Thoma, J.R. Bustillo, G.A. Miller, **C.D. Tesche**, *Neuroimage* **58(4)**, 1158–1168 (2011).

Investigations of Neuronal Dynamics in Human Cerebellum

"Interval Timers and Coupled Oscillators Both Mediate the Effect of Temporally Structured Cueing" T. Martin, J.M. Houck, D. Kičić, **C.D. Tesche**, *NeuroImage* **40(4)**, 1798–1806 (2008).

"Early cerebellar activation predicts response time", J.M. Houck, T. Martin, J.P. Bish, S.N. Moses, C.C. Woodruff, D. Kičić, **C.D. Tesche**, *International Congress Series* **1300**, 413-416 (2007).

"MEG Reveals Different Contributions of Motor Cortex and Cerebellum to Simple Reaction Time Following Temporally-structured Cues", T. Martin, J.M. Houck, J. Pearson Bish, D. Kičić, C.C. Woodruff, S.N. Moses, D.C. Lee, **C.D. Tesche**, *Human Brain Mapping* **27(7)**, 552-61 (2006).

"Anticipatory Cerebellar Responses During Somatosensory Omission in Man", **C.D. Tesche** and J. Karhu, *Human Brain Mapping* **9**, 119–142 (2000).

"Somatosensory Evoked Magnetic Fields Arising from Sources in the Human Cerebellum", **C.D. Tesche** and J. Karhu, *Brain Res.* **744**, 23–31 (1997).

Investigation of Neuronal Dynamics in Human Thalamus

"Non-invasive Imaging of Neuronal Population Dynamics in Human Thalamus", **C.D. Tesche**, *Brain Research* **729**, 253–258 (1996).

"Phase shift detection in thalamocortical oscillations using magnetoencephalography in humans", J. Pearson-Bish, T. Martin, J. Houck, R.J. Ilmoniemi and **C. Tesche**, *Neuroscience Letters* **362**, 48-52 (2004).

PUBLICATIONS

"Sex-related differences in auditory processing in adolescents with fetal alcohol spectrum disorder: A magnetoencephalographic study", **C.D. Tesche**, P.W. Koditwakku, C.M. Garcia, J.M. Houck. *Neuroimage Clinical* **7**:571–587 (2014).

"Topological dynamics in spike-timing dependent plastic model neural networks", D.B. Stone, **C.D. Tesche**. *Frontiers in Neural Circuits* **7(70)**, 1–18 (2013).

"Through a glass darkly: some insights on change talk via magnetoencephalography", J.M. Houck, T.B. Moyers, **C.D. Tesche**. *Psychology of Addictive Behavior* **27(2)**, 489–500 (2013).

- “*Fronto-temporal Anatomical Connectivity and Working-Relational Memory Performance Predicts Everyday Functioning in Schizophrenia*”, F.M. Hanlon, J. M. Houck, S.D. Klimaj, A. Caprihan, A.R. Mayer, M.P. Weisend, J.R. Bustillo, D.A. Hamilton, **C.D. Tesche**, *Psychophysiology* 49(10), 1340–1352 (2012).
- “*Consensus paper: roles of the cerebellum in motor control--the diversity of ideas on cerebellar involvement in movement.*”, M. Manto, J.M. Bower, A.B. Conforto, J.M. Delgado-García, S.N. Farias da Guarda, M. Gerwig, C. Habas, N. Hagura, R.B. Ivry, P. Mariën, M. Molinari, E. Naito, D.A. Nowak, N.O. Ben Taib, D. Pelisson, **C.D. Tesche**, C. Tilikete, D. Timmann, *Cerebellum* 11(2), 457–487 (2012).
- “*Bilateral hippocampal dysfunction in schizophrenia*”, F.M. Hanlon, J.M. Houck, C.J. Pyeatt, S.L. Lundy, M.J. Euler, M.P. Weisend, R.J. Thoma, J.R. Bustillo, G.A. Miller, **C.D. Tesche**, *Neuroimage* 58(4), 1158–1168 (2011).
- “*Oscillatory brain activity related to client speech during motivational interviewing sessions*”, J.M. Houck, T.B. Moyers, **C.D. Tesche**. *Alcoholism-Clinical and Experimental Research* 34(6) suppl. 171A–171A (2010).
- “*Transcranial direct current stimulation modulates shifts in global/local attention*”, D.B. Stone, **C.D. Tesche**, *NeuroReport* 20(12), 1115–1119 (2009).
- “*Interval Timers and Coupled Oscillators Both Mediate the Effect of Temporally Structured Cueing*”, T. Martin, J.M. Houck, D. Kičić, **C.D. Tesche**, *NeuroImage* 40(4), 1798–1806 (2008).
- “*Brain regions and their dynamics in prospective memory retrieval: a MEG study*”, T. Martin, M.A. McDaniel, M.J. Guynn, J.M. Houck, C.C. Woodruff, J.P. Bish, S.N. Moses, D. Kicic, **C.D. Tesche**, *International Journal of Psychophysics* 64(3), 247–258 (2007).
- “*Dynamic neural activity recorded from human amygdala during fear conditioning using magnetoencephalography*”, S.N. Moses, J.M. Houck, T. Martin, F.M. Hanlon, J.D. Ryan, R.J. Thoma, M.P. Weisend, E.M. Jackson, E. Pekkonen, **C.D. Tesche**, *Brain Research Bulletin* 71(5), 452-60 (2007). Epub 2006 Nov 20.
- “*Early cerebellar activation predicts response time*”, J.M. Houck, T. Martin, J.P. Bish, S.N. Moses, C.C. Woodruff, D. Kičić, **C.D. Tesche**, *International Congress Series* 1300, 413-416 (2007).
- “*Dynamics of Frontal and Cerebellar Activation During Aversive Conditioning: A MEG Study*”, **C.D. Tesche**, S.N. Moses, J.M. Houck, T. Martin, F.M. Hanlon, E. Jackson, D. Kičić, *International Congress Series* 1300, 437-440 (2007).
- “*Assessment of lateralized hippocampal function in schizophrenia.*” F.M. Hanlon, A.P. Jones, R.M. Bantz, S.L. Lundy, R.J. Thoma, M.P. Weisend, A.R. Mayer, J.R. Bustillo, G.A. Miller, **C.D. Tesche**, *Schizophrenia Bulletin* 33(2), 369–370 (2007).
- “*MEG Reveals Different Contributions of Motor Cortex and Cerebellum to Simple Reaction Time Following Temporally-structured Cues*”, T. Martin, J.M. Houck, J. Pearson Bish, D. Kičić, C.C. Woodruff, S. N. Moses, D.C. Lee, **C.D. Tesche**, *Human Brain Mapping* 27(7), 552-61 (2006).

- "The C50m Response: Conditioned Magnetocerebral Activity Recorded from the Human Brain"*, S.N. Moses, T. Martin, J.M. Houck, R.J. Ilmoniemi, **C.D. Tesche**, *NeuroImage* **27**(4), 778–788 (2005).
- "Chronometric Evidence for Entrained Attention"*, T. Martin, R. Egly, J. Houck, J. Pearson-Bish, B. Barrera, D. Lee, **C. Tesche**, *Perception & Psychophysics* **67**(1), 168-84 (2005).
- "SQUIDs from Physics to Brain Research"*, **C. Tesche**, *Journal of Low Temperature Physics* **135**(4-5), 773-791 (2004).
- "Phase shift detection in thalamocortical oscillations using magnetoencephalography in humans"*, J. Pearson-Bish, T. Martin, J. Houck, R.J. Ilmoniemi and **C. Tesche**, *Neuroscience Letters* **362**, 48-52 (2004).
- "Frontal Theta Activity in Humans Increases with Memory Load in a Working Memory Task"*, O. Jensen and **C.D. Tesche**, *European Journal of Neuroscience* **15**, 1–6 (2002).
- "Theta Oscillations Index Human Hippocampal Activation During a Working Memory Task"*, **C.D. Tesche** and J. Karhu, *PNAS* **97** (2), 919–924 (2000).
- "Anticipatory Cerebellar Responses During Somatosensory Omission in Man"*, **C.D. Tesche** and J. Karhu, *Human Brain Mapping* **9**, 119–142 (2000).
- "Schroedinger's Cat is out of the Hat"*, **C.D. Tesche**, *Science* **290**, 720 (2000).
- "Evidence for Somatosensory Evoked Responses in Human Temporal Lobe"*, **C.D. Tesche**, *Neuroreport* **11**(12), 2655-8 (2000).
- "Interactive Processing of Sensory Input and Motor Output in Human Hippocampus"*, **C.D. Tesche** and J. Karhu, *Journal of Cognitive Neuroscience* **11** (4), 424-436 (1999).
- "Simultaneous Early Processing of Sensory Input in Human Primary (SI) and Secondary (SII) Somatosensory Cortices"*, J. Karhu and **C.D. Tesche**, *Journal of Neurophysiology* **81**(5), 2017-2015 (1999).
- "Neural Processing of Human Faces: a Magnetoencephalographic Study"*, S.J. Swithenby, A.J. Bailey, S. Bräutigam, O.E. Josephs, V. Jousmäki and **C.D. Tesche**, *Experimental Brain Research* **118**, 501–510 (1998).
- "Somatosensory Evoked Magnetic Fields Arising from Sources in the Human Cerebellum"*, **C.D. Tesche** and J. Karhu, *Brain Research* **744**, 23–31 (1997).
- "Non-invasive Detection of Ongoing Neuronal Population Activity in Normal Human Hippocampus"*, **C.D. Tesche**, *Brain Research* **749**, 53–60 (1997).
- "Detecting Activity from Deep Brain Areas with MEG Arrays"*, **C.D. Tesche**, *Biomedizinische Technik* **42**, 60–63 (1997).
- "Non-invasive Imaging of Neuronal Population Dynamics in Human Thalamus"*, **C.D. Tesche**, *Brain Research* **729**, 253–258 (1996).

"MEG Imaging of Neuronal Population Dynamics in the Human Thalamus", **C.D. Tesche**, in *Visualization of Information Processing in the Human Brain: Recent Advances in MEG and Functional MRI*. EEG Suppl. 47, 81–90 (1996).

"Non-invasive Detection of Neuronal Population Activity in Human Hippocampus", **C.D. Tesche**, J. Karhu and S.O. Tissari, *Cognitive Brain Research* 4, 39–47 (1996).

"Characterizing the Local Oscillatory Content of Spontaneous Cortical Activity During Mental Imagery", **C.D. Tesche**, M.A. Uusitalo, R.J. Ilmoniemi and M.J. Kajola, *Cognitive Brain Research* 2, 243–249 (1995).

"Signal-space Projections of MEG Data Characterize both Distributed and Well-localized Neuronal Sources", **C.D. Tesche**, M.A. Uusitalo, R.J. Ilmoniemi, M. Huotilainen, M. Kajola and O. Salonen, *Electroencephalography clinical Neurophysiology* 95, 189–200 (1995).

"A Comparison of the Localization of Spontaneous Neuromagnetic Activity in the Frequency and Time Domains", **Claudia Tesche** and Matti Kajola, *Electroencephalography clinical Neurophysiology* 87, 408–416 (1993).

"Independence of Steady-state 40-Hz Response and Spontaneous 10-Hz Activity in the Human Auditory Cortex", **C.D. Tesche** and R. Hari, *Brain Research* 629, 19-22 (1993).

"A 122-channel Whole-cortex SQUID System for Measuring the Brain's Magnetic Fields", Jukka E.T. Knuutila, Antti I. Ahonen, Matti S. Hämäläinen, Matti J. Kajola, P. Petteri Laine, Olli V. Lounasmaa, Lauri T. Parkkonen, Juha T.A. Simola and **Claudia Tesche**, *IEEE Transactions on Magnetism* 29, (6) 3315–3320 (1993).

"122-channel SQUID Instrument for Investigating the Magnetic Signals from the Human Brain", A.I. Ahonen, M.S. Hämäläinen, J.E.T. Knuutila, M.J. Kajola, P.P. Laine, O.V. Lounasmaa, L.T. Parkkonen, J.T. Simola and **C.D. Tesche**, *Physica Scripta* T49, 198-205 (1993).

"Functional Differences Between Auditory Cortices of the Two Hemispheres Revealed by Whole-head Neuromagnetic Recordings", J.P. Mäkelä, A. Ahonen, M. Hämäläinen, R. Hari, R. Ilmoniemi, M. Kajola, J. Knuutila, O.V. Lounasmaa, L. McEvoy, R. Salmelin, O. Salonen, M. Sams, J. Simola, **C. Tesche** and J.-P. Vasama, *Human Brain Mapping* 1, 48-56 (1993).

"Multichannel SQUID Systems for Brain Research", A.I. Ahonen, M.S. Hämäläinen, M.J. Kajola, J.E.T. Knuutila, O.V. Lounasmaa, J.T. Simola, **C.D. Tesche**, and V.A. Vilkmán, *IEEE Transactions on Magnetism* MAG-27, 2786–2792 (1991).

"Exploiting Lead Field Analysis to Obtain a Well Defined Inverse and Figure of Merit for Current Source Reconstruction", **C.D. Tesche**, *Proceedings of the 8th International Conference on Biomagnetism* (Muenster, 1991), p. 735.

"Application of Multichannel SQUID Systems for Studies of the Human Brain", A.I. Ahonen, M.S. Hämäläinen, M.J. Kajola, J.E.T. Knuutila, O.V. Lounasmaa, J.T. Simola, **C.D. Tesche**, and V.A. Vilkmán, in: *Superconducting Technology: 10 Case studies*, (1991) Eds. K. Fossheim (World Scientific, Singapore) p. 31–49.

"Exploring the Boundary Between Quantum and Classical Mechanics with Superconducting Devices", **C.D. Tesche**, *Arkhimedes* 1991.

"Can a Noninvasive Measurement of Magnetic Flux be Performed with Superconducting Circuits?", **C.D. Tesche**, *Physical Review Letters* 64, 2358 (1990).

"Superconducting Measurement Circuit for an EPR Experiment with an rf SQUID", **C.D. Tesche**, *Physica B* 165 & 166 p. 925 (1990).

"EPR as a Guide to Understanding the MQC Measurement Scheme", **C.D. Tesche**, in: *Macroscopic Quantum Phenomena*, T.D. Clarke, ed. World Scientific, p. 67 (1990).

"Designing Multichannel Magnetometers", **C.D. Tesche**, *Proceedings of the 12th Annual International Conference of IEEE Engineering in Medicine and Biology Society*, part 3/5, p. 1080 (1990).

"A 24-SQUID Gradiometer for Magnetoencephalography", S. Ahlfors, A. Ahonen, G. Ehnholm, M. Hämäläinen, R. Ilmoniemi, M. Kajola, M. Kiviranta, J. Knuutila, O. Lounasmaa, J. Simola, **C. Tesche**, and V. Vilkmán, *Physica B* 165 & 166 p. 97 (1990).

"A Measurement Circuit to Test Bell's Inequality in a Macroscopic Superconducting Device", **C.D. Tesche**, in: *Quantum Coherence*, J.A. Anandan, ed. World Scientific p. 373 (1989)

"Status Report on the MQC Experiment: Observation of Ideal Quasiparticle Resistance in Josephson Junctions", **C.D. Tesche**, J.R. Kirtley, W.J. Gallagher, A.W. Kleinsassar, R.L. Sandstrom, S.I. Raider and M.P.A. Fisher, *Proceedings of the 3rd International Symposium on the Foundations of Quantum Mechanics*, p. 233 (1989).

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MASTER'S THESIS AND DISSERTATION PROJECTS SUPERVISED

Andrei A. Vakhtin, M.A. "Aberrant Development of Post-Movement Beta Rebound in Young Adults with Fetal Alcohol Spectrum Disorders (Spring 2015)

Daniel L. Rudder, M.A. "Transcranial Direct Current Stimulation for the Reduction of Alcohol Craving (Fall 2013)

David Stone, Ph.D. “Topological dynamics of spike-timing dependent plastic neural networks” (Fall 2012)

David Stone, M.A. “Transcranial direct current stimulation modulates shifts in global/local attention” (2009)

Jon Houck, M.S. “A magnetoencephalographic analysis of early cerebellar activation during mental rotation task” (Spring 2006)

Jon Houck, Ph.D. “The neuroscience of motivational interviewing change talk” (Spring 2011)

Eric Jackson, M.A. “Cerebellar activation during encoding for object and spatial working memory tasks” (Spring 2006)

Tim Martin, Ph.D. “Relating psychological mechanisms of dynamic attention and interval timing to brain activity with MEG” (Fall 2005)

Sandra Naomi Moses, Ph.D. “Neural substrates of human associative learning measured with magnetoencephalography” (Spring 2004)

Joel Pearson Bish, Ph.D. “The effect of stimulus onset asynchrony on cross-modal integration” (Fall 2003)

Christopher Chad Woodruff, Ph.D. “Object- and space-based attention differentially influence the contingent magnetic variation” (Fall 2003)

COURSES TAUGHT

Functional Neuroimaging MEG-EEG
Introduction to Functional Neuroimaging
Transcranial Stimulation
EEG Laboratory
Transcranial Stimulation Laboratory
Biological Bases of Behavior
Neuroanatomy
Human Electrophysiology
Biological Basis of Memory
Cerebellum and Cognition
Seminar in Physiological Psychology