

Peter J. Lang, Ph.D.

Graduate Research Professor

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Department of Psychology: College of Liberal Arts & Sciences
 Department of Psychiatry: College of Medicine
 Department of Oral Biology: College of Dentistry
 Department of Neuroscience: College of Medicine

Director

Center for the Study of Emotion and Attention, University of Florida
Fear and Anxiety Disorder Clinic, UF Health Science Center

Academic Degrees

Denison University	B.A.	1950	Psychology
University of Buffalo	M. A.	1952	Romance Languages
University of Buffalo	Ph.D.	1958	Psychology
Uppsala University, Sweden	Ph.D.	1975	<i>Honoris Causa</i>
University of Tübingen, Germany	Ph.D.	1978	<i>Honoris Causa</i>
University of Granada, Spain	Ph.D.	2007	<i>Honoris Causa</i>
University Jaumé I, Spain	Ph.D.	2008	<i>Honoris Causa</i>

Academic Positions

Teaching Fellow, Department of Psychology University of Buffalo	1956-58
Assistant Professor, Department of Psychology University of Pittsburgh	1958-63
Associate Professor, Department of Psychology University of Pittsburgh	1963-64
Associate Professor, Department of Psychology University of Wisconsin - Madison	1964-66
Professor, Department of Psychology University of Wisconsin - Madison	1966-82
Clark Leonard Hull Professor (WARF Chair) University of Wisconsin - Madison	1979-82
Graduate Research Professor University of Florida - Gainesville	1981-present

Honors

- 1960 **Member**, Sigma Xi
- 1961-62 **Creative Talent Award**, (Dissertation Director of winning thesis by D. J. Reynolds) from the American Institute of Research: Developmental, Counseling, and Mental Health Field
- 1967-72 **Career Development Award**
National Institute of Mental Health
- 1975, 1978 **Honorary Doctorates** (see Academic Degrees)
- 1980 **Distinguished Scientist Award**
Society for a Science of Clinical Psychology
- 1990 **Faculty Research Award**,
College of Health Related Professions, University of Florida
- 1990 **Award for Distinguished Contributions to Psychophysiology**
Society for Psychophysiological Research
- 1992 **Research MERIT Award**
National Institute of Mental Health
- 1993 **Distinguished Scientific Contribution Award**
American Psychological Association
- 1996 **Distinguished Scientist Lecturer**
appointed by the American Psychological Association
- 1996 **Faculty Research Award**
College of Health Professions, University of Florida
- 1996 **Professional Excellence Promotion**, University of Florida
- 2004 **Distinguished International Educator Award**, University of Florida
- 2006 **APDA (Adult Psychopathology Disorders of Aging Study Section) NIMH, Humanitarian Award**,
Biobehavioral and Behavioral Processes Integrated Review Group, Center for Scientific Review, National Institutes of Health
- 2007, 2008 **Honorary Doctorates** (see Academic Degrees)
- 2009 **Albert Bandura Graduate Research Award, Psi Chi**
Research Advisor to the Awardee, Vincent Costa
- 2010 **Honorary Fellow**, German Psychophysiological Society
- 2016 **Lifetime Career Award**
International Union of Psychological Science

Academic Visitor

- Visiting Scientist, Centre National de la Recherche Scientifique
(Neurophysiology & Psychophysiology Laboratory, J. Paillard),
Marseille, France 1970-71
- Visiting Scholar, Department of Psychology,
Vrije University, Amsterdam, The Netherlands 1976
- Visiting Professor, Department of Psychology,
University of Giessen, West Germany 1977, 1984
- Visiting Professor, Department of Psychology,
University of Tübingen, West Germany 1985, 1990
- Visiting Professor, Department of Psychology
University of Amsterdam, The Netherlands 1988

Major Research Grant Awards

- National Institute of Mental Health (NIMH) Grant M-3567
1959 Verbal mediation in schizophrenia

- NIMH Grant MH-3880
 1960-63 Systematic desensitization therapy
 1963-64 Renewed
- NIMH Grant MH-10993
 1964-66 Fear modification and learned autonomic control
 1966-71 Renewed
 1971-76 Renewed
 1976-79 Renewed
 1979-82 Renewed
- NIMH Grant MH-37757
 1982-87 The psychophysiology of the anxiety disorders
 1987-92 Renewed
 1992-97 Renewed by MERIT Award
 1998-2002 Renewed
- NASA Grant NAG 2-234
 1983-86 Cognitive performance, arousal, and emotional stress
- NIMH Grant MH-41950
 1986-91 Emotion and aging
- NIA Grant AG-09779 (former MH-41950), to study
 1991-96 Emotion and aging: Renewed
- NIMH Grant MH-43975
 1988-90 The startle probe in the study of emotion.
 1991-96 Renewed
 1996-2000 Renewed
- NIMH grants awarded to U.S. Control Systems, Inc; Sub-contract to LANG
 1988-90 Grant MH-42041
 Modular multi-parameter ambulatory processor.
 1990-92 Grant MH-46157
 Facial imaging in biobehavioral assessment.
 1991-94 Grant MH-47624
 Advanced laboratory system for psychophysiology.
- NATO Grant CRG-951338
 1996-97 Emotional modulation of the defense response.
 Institut für Grenzgebiete der Psychologie und Psychohygiene
 (Private research Foundation, Breisgau, Germany)
 1998-2000 Imagery, media, and virtual perception.
- NIMH Behavioral Science Center P50 MH-52384**
 1994-99 Center for the Study of Emotion and Attention (CSEA)
 1999-2004 Renewed
- NIMH Interdisciplinary Behavioral Science Center P50 MH-72850**
 2005-2011 Center for the Study of Emotion and Attention (CSEA)
- NIMH Grant MH082701
 2009-2012 Attention Capture in Fear, Anxiety, and Depression
- NIMH Grant MH084932, Co-PI
 2009-2012 Hypervigilance vs. perceptual avoidance in social phobia
- NIMH Grant MH098078
 2012-2016 From fear to anxious misery: Developing a defense circuit classifier
- NIMH Grant MH094386
 2012-2018 Anxiety, comorbidity, negative affect, and fear circuit activation
- NIMH Grant MH12043, Investigator

2019-2021 Developing a novel pupillometric assessment of autonomic function:
Testing targeted individual differences in BMI, temperament & aerobic
fitness

NIMH Grant MH120829: *Pending May 2019 NIH Advisory Council Meeting*

2019-2021 Anxiety and aversive learning: Neural mechanics of generalization
and patterns of disorder pathology

Professional Memberships

American Psychological Association	1958-present
Division 12, Clinical Psychology	
Member, Section III organizing committee	1965-present
<i>Society for a Science of Clinical Psychology</i>	
Elected a Fellow	1969
Elected Chairman of Section III	1974
Organizer and first Chairman of the Doctoral Research Award Committee, Section III	1975
Division 6, Physiological and Comparative Psychology: Elected Fellow	1970
Division 38, Health Psychology	1983-present
Division 26, History of Psychology	1985-present
Society for Psychophysiological Research	1964-present
Board of Directors	1968-1972
Program Chair for the National Meeting	1973
President	1977-1978
Chair, Nominating Committee	1979-1980
Chair, Committee on International Communication	1981
American Association for the Advancement of Science	1970-present
Elected Fellow	1970
The Society for Neuroscience	1975-present
International Society for Research on Emotions	1985-present
Board of Directors	1985-1987
Association for the Advancement of Behavior Therapy	1973-2004
Board of Directors	1976
Academy of Behavioral Medicine Research, Fellow	1986-
Executive Council	2000-2002
American Psychopathological Association	1989-1990
The Psychonomic Society	1986-
The Anxiety Disorders Association of American	1998-2001
Member, Scientific Advisory Board	
Stress and Anxiety Research Society	2005-
Society for Research in Psychopathology	2005-
Association for the Behavioral and Cognitive Therapies	2005-

Clinical Experience

Psychology Intern, Chronic Disease Research Institute Buffalo, New York	1954
Clinical Psychology Technician, Neuropsychiatric Services U.S. Army Hospital, Fort Knox, Kentucky	1955-56
Intern, Psychological Clinic University of Buffalo	1956-58
Supervision and practice, Psychological Clinic	1958-64

University of Pittsburgh	
Certified for private practice by the Pennsylvania Psychological Association	1962
Consultant, Veterans Administration Hospital and Mental Hygiene Clinic, Pittsburgh, Pennsylvania	1958-64
Supervision and practice, Psychology Department, Research & Training Clinic, University of Wisconsin -Madison	1964-82
Consultant, Veterans Administration Hospital, Wood, Wisconsin	1967-75
Authorized to practice psychology by the State of Wisconsin (#527, Dept. of Regulation & Licensing)	1975-
Director, Clinical Psychology Training, University of Wisconsin	1966-67 & 1975-81
Director, UF Fear and Anxiety Clinic (FADC) Dept. of Clinical and Health Psychology, University of Florida	Current

Editorial Experience

<i>Journal of Personality and Social Psychology</i>	
Consulting Editor	1967-70
<i>Psychophysiology</i>	
Member of the Publications Board	1970-73
Consulting Editor	1968-70
Associate Editor	1971-72
Guest Editor (with Arne Öhman) Special European Issue - published July	1981
<i>Behavior Therapy</i>	
Member of the Editorial Board	1969-73
<i>Journal of Behavior Therapy and Experimental Psychiatry</i>	
Member of the Editorial Board	1969-99
<i>Journal of Applied Behavioral Analysis</i>	
Member of the Editorial Board	1967-70
<i>Psychotherapy: Theory, Research, & Practice</i>	
Member of the Editorial Board	1973-75
<i>Clinical Behavior Therapy Review</i>	
Member of the Editorial Board	1978-81
<i>Journal of Psychopathology and Behavioral Assessment</i>	
Member of the Editorial Board	1979-90
<i>Journal of Anxiety Disorders</i>	
Member of the Editorial Board	1986-89
<i>Cognition and Emotion</i>	
Member of the Advisory Board	1985-2007
<i>Emotion Review</i>	
Member of the Editorial Board	2011-15
<i>Psychophysiology</i>	
Consulting Editor	2017 - present
<i>Ad-hoc referee for dozens of journals</i>	

Administrative Experience

Director, Clinical Training, University of Wisconsin, Psychology Department and Administrator,	1966-67
NIMH Clinical Training Grant	1975-81

Department and University of Wisconsin Committees: Executive, Budgetary, Personnel, Computer Use, Space, Colloquium, Undergraduate Advisement, UW Bio-Engineering Group	1975-81
Director, UF Center for the Study of Emotion & Attention (formerly "Research in Psychophysiology")	1986-present
Area Head, Department of Clinical and Health Psychology Emotion Neuroscience and Psychopathology Area	1999-2017

Consultant, Education and Research

Member, Small Grants Research Review Committee National Institute of Mental Health (NIMH)	1968-70
Member, NIMH Clinical Projects Research Review	1972-75
Ad Hoc Member, Program Projects Research Review Committee, Heart & Lung Institute (NIH)	1970, 74
Member, Cognition, Personality, and Emotion (CEP) Research Review Committee, NIMH	1979-83
Cambridge Center for Behavioral Studies Advisory Board	1981-86
Member, Grant Review Committee for Development Award Competition, University of Florida	1982
Member, Mental Health Research Education Review Committee, NIMH	1986-87
Ad Hoc Grant Reviews for National Science Foundation and Veterans Administration	1986
Chairman, APA Site Visit Committee to evaluate the clinical psychology training program of the University of Pennsylvania	1988
Ad Hoc Member for Special Review, NIMH-Emotion and Personality Review Committee	1991, 1992
Member, Institute of Medical Psychology and Behavioral Neurobiology	1993-present
Member, NIMH Clinical Centers and Special Projects Review Committee	1995
Member, NIMH Social and Group Processes Review Committee	1995, 96-97
Member, National Research Council, Space Studies Board, Committee on Space Biology & Medicine, Panel on Human Behavior	1997-99
Member, Anxiety Disorders Association of American Advisory Board	1998-2000
Member, Advisory Council, Center for Exercise Science, Department of Exercise Science, University of Florida	2000-present
Member, Advisory Board, College of Nursing Biobehavioral Research Center, University of Florida	2000-present
Member, NIH Review Committee "Developing Translational Research in Behavioral Science"	2001
Member, NIH Review Committee "Adult Psychopathology And Disorders of Aging"	2005
Member, NIMH Review Committee for the Intramural Psychopathology/Neuroscience program	2004, 06, 08

Member, Advisory Board, Advance Magnetic Resonance Imaging and Spectroscopy, U. of Florida	2010-present
Consultant/participant, Negative Valence Systems Workshop NIMH Research Domain Criteria (RDoC) conference	2011
Member, RDoC Investigators Meeting NIMH progress review	2016

Publications

- Lang, P. J. (1959). The effect of aversive stimuli on reaction time in schizophrenia. *Journal of Abnormal and Social Psychology*, *59*, 263-268.
- Feldman, M. J., Lang, P. J., & Levine, B. J. (1959). Word association disturbance, learning, and retention. *Psychological Reports*, *5*, 607-608.
- Cavanaugh, D. K., Cohen, W., & Lang, P. J. (1960). The effect of "social censure" and "social approval" on the psychomotor performance of schizophrenics. *Journal of Abnormal and Social Psychology*, *60*, 213-218.
- Lazovik, A. D., & Lang, P. J. (1960). A laboratory demonstration of systematic desensitization psychotherapy. *Journal of Psychological Studies*, *11*, 238-247.
- Lang, P. J., & Hnatiow, M. (1962). Stimulus repetition and the heart rate response. *Journal of Comparative and Physiological Psychology*, *55*, 781-785.
- Lang, P. J., & Lazovik, A. D. (1962). Personality and hypnotic susceptibility. *Journal of Consulting Psychology*, *26*, 317-322.
- Lang, P. J., & Luoto, K. (1962). Mediation and associative facilitation in neurotic, psychotic, and normal subjects. *Journal of Abnormal and Social Psychology*, *64*, 113-120.
- Lang, P. J., Geer, J., & Hnatiow, M. (1963). Semantic generalization of conditioned autonomic responses. *Journal of Experimental Psychology*, *65*, 552-558.
- Lang, P. J., & Lazovik, A. D. (1963). Experimental desensitization of a phobia. *Journal of Abnormal and Social Psychology*, *66*, 519-525. Reprinted in L. P. Ullman & L. Krasner (Eds.) (1965), *Case studies in behavior modification*. New York: Holt, Rinehart & Winston. Reprinted in I. G. Sarason (Ed.) (1969), *Contemporary research in personality*. Princeton: Van Nostrand.
- Wolpe, J., & Lang, P. J. (1964). A fear survey schedule for use in behavior therapy. *Behavior Research & Therapy*, *2*, 27-30. Reprinted (1970) in *Behavior modification procedure: A sourcebook*. New York: Aldine-Atherton.
- Hnatiow, M., & Lang, P. J. (1965). Learned stabilization of cardiac rate. *Psychophysiology*, *1*, 330-336. Reprinted in T. X. Barber et al. (Eds.) (1970), *Biofeedback annual*. New York: Aldine-Atherton.
- Lang, P. J., Lazovik, A. D., & Reynolds, D. J. (1965). Desensitization, suggestibility, and pseudotherapy. *Journal of Abnormal Psychology*, *70*, 395-402. Reprinted by Warner Modular Publications, Inc. Andover, MA, 1973.
- Buss, A. H., & Lang, P. J. (1965). Psychological deficit in schizophrenia: I. Affect, reinforcement, and concept attainment. *Journal of Abnormal Psychology*, *70*, 2-24. Reprinted in D. Rosenhan & P. London (Eds.) (1969), *Theory and research in abnormal psychology*. New York: Holt, Rinehart & Winston.
- Lang, P. J., & Buss, A. H. (1965). Psychological deficit in schizophrenia: II. Interference and activation. *Journal of Abnormal Psychology*, *70*, 77-106. Reprinted in D. Rosenhan & P. London (Eds.) (1969), *Theory and research in abnormal psychology*. New York: Holt, Rinehart & Winston.
- Levy, P., & Lang, P. J. (1966). Activation, control, and the spiral after movement. *Journal of Personality and Social Psychology*, *3*, 105-112.
- Lang, P. J. (1966). Experimental studies of fear reduction. *Journal of Dental Research*, *45*, 1618-1619.

- Lang, P. J. (1966). The transfer of treatment. *Journal of Consulting Psychology, 30*, 375-378.
- Lang, P. J., Sroufe, L. A., & Hastings, J. E. (1967). Effects of feedback and instructional set on the control of cardiac rate variability. *Journal of Experimental Psychology, 75*, 425-431.
- Lang, P. J. (1969). Aversive conditioning in the laboratory and clinic. Book review of Marshall R. Jones (Ed.), *Miami Symposium on the Prediction of Behavior, 1967: Aversive Stimulation. Contemporary Psychology, 14*, 283-286.
- Lang, P. J. (1969). The "on-line" computer in behavior therapy research. *American Psychologist, 24*, 236-239.
- Connor, W., & Lang, P. J. (1969). Cortical slow-wave and cardiac rate responses in stimulus orientation and reaction time conditions. *Journal of Experimental Psychology, 82*, 310-320.
- Lang, P. J., & Melamed, B. G. (1969). Avoidance conditioning therapy of an infant with chronic ruminative vomiting. *Journal of Abnormal Psychology, 74*, 1-8. Reprinted in *Behavior therapy and health care*. New York: Pergamon Press, 1974. Reprinted in *Contemporary readings in psychopathology*. New York: John Wiley & Sons, 1974. Reprinted in E. M. Hetherington & Ross D. Parke (Eds.), *Readings in child psychology: A contemporary viewpoint*. New York: MacGraw Hill. Reprinted in S. J. Morse & R. I. Watson, Jr., (Eds.), *Psychotherapies: A comparative casebook*. New York: Holt, Rinehart & Winston, in press. Reprinted in G. Murphy & B. Wilson (Eds.), *Self injurious behavior*. British Institute of Mental Handicap, 1985.
- Lang, P. J., Melamed, B. G., & Hart, J. D. (1970). A psychophysiological analysis of fear modification using an automated desensitization procedure. *Journal of Abnormal Psychology, 76*, 220-234. Reprinted in *Current trends in Army medical service psychology* (pp. 123-153), Fitzsimons General Hospital, Denver, CO, 1969. Reprinted in I. Florin & W. Tunner (Eds.) (1975), *Therapie der Angst: Systematische Desensibilisierung, Fortschritte der Klinischen Psychologie, 8*. Urban & Schwarzenberg: Munchen-Berlin-Wien.
- Lang, P. J. (1970). Autonomic control or learning to play the internal organs. *Psychology Today*, October, 37-41. Reprinted in T. X. Barber, L. V. DiCara, J. Kamiya, N. E. Miller, D. Shapiro & J. Stoyva (Eds.) (1971), *Biofeedback and self-control, 1970*. Chicago: Aldine-Atherton. Reprinted in *Readings in Psychology Today*, 1974.
- Bull, K., & Lang, P. J. (1972). Intensity judgments and physiological response amplitude. *Psychophysiology, 9*, 428-436.
- Klorman, R., & Lang, P. J. (1972). Cardiac response to signal and nonsignal tasks in 9-year-olds. *Psychonomic Science, 28*, 299-300.
- Gatchel, R., & Lang, P. J. (1973). Accuracy of psychophysiological judgments and physiological response amplitude. *Journal of Experimental Psychology, 98*, 175-183.
- Weerts, T., & Lang, P. J. (1973). The effects of eye fixation and stimulus and response location on the contingent negative variation (CNV). *Biological Psychology, 1*, 1-19.
- Klorman, R., Weerts, T. C., Hastings, J. E., Melamed, B. G., & Lang, P. J. (1974). Psychometric description of some specific-fear questionnaires. *Behavior Therapy, 5*, 401-409.
- Lang, P. J., & Twentyman, C. T. (1974). Learning to control heart rate: Binary vs. analog feedback. *Psychophysiology, 11*, 616-629. Reprinted in *Biofeedback and self-control, 1974* (pp. 220-234). Chicago: Aldine, 1975.
- Gatchel, R. J., & Lang, P. J. (1974). Effects of interstimulus interval length and variability on habituation of autonomic components of the orienting response. *Journal of Experimental Psychology, 103*, 802-804.

- Lang, P. J., Troyer, W. G., Twentyman, C. T., & Gatchel, R. J. (1975). Differential effects of heart rate modification training on college students, older males, and patients with ischemic heart disease. *Psychosomatic Medicine*, *37*, 429-446. Reprinted in T. S. Barber, L. V. DiCara, J. Kamiya, N. E. Miller, D. Shapiro, & J. Stoyva (Eds.), *Biofeedback and self-control 1975-1976*. Chicago: Aldine, 1976.
- Lang, P. J., Gatchel, R. J., & Simons, R. F. (1975). Electro-cortical and cardiac rate correlates of psychophysical judgment. *Psychophysiology*, *12*, 649-655.
- Lang, P. J., & Twentyman, C. T. (1976). Learning to control heart rate: Effects of varying incentive and criterion of success on task performance. *Psychophysiology*, *13*, 378-385.
- Simons, R. F., & Lang, P. J. (1976). Psychophysical judgment: Electro-cortical and heart rate correlates of accuracy and uncertainty. *Biological Psychology*, *4*, 51-64.
- Cuthbert, B. N., & Lang, P. J. (1976). Biofeedback and cardiovascular self-control. *Nordisk Tidskrift for Beteendeterapi (Scandinavian Journal of Behavior Therapy)*, *5*, 111-132.
- Lang, P. J. (1976-77). Biofeedback and the testing of experimental hypotheses. *European Journal of Behavior Analysis and Modification*, *4*, 252-254.
- Lang, P. J. (1977). Imagery in therapy: An information processing analysis of fear. *Behavior Therapy*, *8*, 862-886.
- Lang, P. J. (1977). Psychophysiological analysis and modification in research with children at risk for schizophrenia. In *Primary prevention of schizophrenia in high-risk groups: Report on a working group* (pp. 45-50). Copenhagen: World Health Organization.
- Weerts, T. C., & Lang, P. J. (1978). The psychophysiology of fear imagery: Differences between focal phobia and social-performance anxiety. *Journal of Consulting and Clinical Psychology*, *46*, 1157-1159.
- Simons, R. F., Öhman, A., & Lang, P. J. (1978). Anticipation and response set: Cortical, cardiac, and electrodermal correlates. *Psychophysiology*, *16*, 222-233.
- Lang, P. J. (1979). A bio-informational theory of emotional imagery. *Psychophysiology*, *16*, 495-512.
- Lang, P. J., Kozak, M. J., Miller, G. A., Levin, D. N., & McLean, Jr., A. (1980). Emotional imagery: Conceptual structure and pattern of somato-visceral response. *Psychophysiology*, *17*, 179-192.
- Twentyman, C. T., & Lang, P. J. (1980). Instructed heart rate control: Effects of varying feedback frequency and timing. *Biofeedback and Self-Regulation*, *5*, 417-426.
- Cuthbert, B. N., Kristeller, J., Simons, R., Hodes, R., & Lang, P. J. (1981). Strategies of arousal control: Biofeedback, meditation, and motivation. *Journal of Experimental Psychology: General*, *110*, 518-546.
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- Lang, P. J. (1982). For distinguished contribution to psychophysiology: Frances Keesler Graham. *Psychophysiology*, *19*, 121-123.
- Simons, R. F., Miller, G. A., Weerts, T. C., & Lang, P. J. (1982). Correcting baseline drift artifact in slow potential recording. *Psychophysiology*, *19*, 691-700.
- Lang, P. J., Levin, D. N., Miller, G. A., & Kozak, M. J. (1983). Fear behavior, fear imagery and the psychophysiology of emotion: The problem of affective response integration. *Journal of Abnormal Psychology*, *92*, 276-306.
- Lang, P. J., & Cuthbert, B. N. (1984). Affective information processing and the assessment of anxiety. *Journal of Behavioral Assessment*, *6*, 369-395.
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- Cook, E. W., III, Hodes, R. L., & Lang, P. J. (1986). Preparedness and phobia: Effects of stimulus content on human visceral conditioning. *Journal of Abnormal Psychology*, *95*, 195-207.

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- Miller, G. A., Levin, D. N., Kozak, M. J., Cook, E. W., III, McLean, A., Jr., & Lang, P. J. (1987). Individual differences in imagery and the psychophysiology of emotion. *Cognition and Emotion*, *1*, 367-390.
- Lang, P. J. (1987). Image as action: A reply to Watts and Blackstock. *Cognition and Emotion*, *1*, 407-426.
- Bradley, M. M., Cuthbert, B. N., & Lang, P. J. (1988). Perceptually driven movements as contextual retrieval cues. *Bulletin of the Psychonomic Society*, *26*, 541-543.
- Cook, E. W., III, Melamed, B. G., Cuthbert, B. N., McNeil, D. W., & Lang, P. J. (1988). Emotional imagery and the differential diagnosis of anxiety. *Journal of Consulting and Clinical Psychology*, *56*, 734-740.
- Vrana, S. R., Spence, E. L., & Lang, P. J. (1988). The startle probe response: A new measure of emotion? *Journal of Abnormal Psychology*, *97*, 487-491.
- Birbaumer, N., Lang, P. J., Cook, E. W., III, Elbert, T., Lutzenberger, W., & Rockstroh, B. (1988). Slow brain potentials, imagery, and hemispheric differences. *International Journal of Neuroscience*, *39*, 101-116.
- Greenwald, M. K., Cook, E. W., III, & Lang, P. J. (1989). Affective judgment and psychophysiological response: Dimensional covariation in the evaluation of pictorial stimuli. *Journal of Psychophysiology*, *3*, 51-64.
- Vrana, S. R., Cuthbert, B. N., & Lang, P. J. (1989). Processing fearful and neutral sentences: Memory and heart rate change. *Cognition and Emotion*, *3*, 179-195.
- Hamm, A. O., Vaitl, D. & Lang, P. J. (1989). Fear conditioning, meaning, and belongingness: A selective association analysis. *Journal of Abnormal Psychology*, *98*, 395-406.
- Vrana, S. R., & Lang, P. J. (1990). Fear imagery and the startle probe reflex. *Journal of Abnormal Psychology*, *99*, 189-197.
- Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1990). Emotion, attention, and the startle reflex. *Psychological Review*, *97*, 377-398.
- Bradley, M. M., Cuthbert, B. N., & Lang, P. J. (1990). Startle reflex modification: Emotion or attention? *Psychophysiology*, *27*, 513-523.
- Bradley, M. M., Cuthbert, B. N., & Lang, P. J. (1991). Startle and emotion: Lateral acoustic probes and the bilateral blink. *Psychophysiology*, *28*, 285-295.
- Cacioppo, J. T., Uchino, B. N., Crites, S. L., Sinderson, M. A., Smith, G., Bernston, G. G., & Lang, P. J. (1992). The relationship between facial expressiveness and sympathetic activation in emotion: A critical review, with emphasis on modeling underlying mechanisms and individual differences. *Journal of Personality and Social Psychology*, *62*, 110-128.
- Bradley, M. M., Greenwald, M. K., Petry, M. C., & Lang, P. J. (1992). Remembering pictures: Pleasure and arousal in memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *18*, 379-390.
- Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1992). A motivational analysis of emotion: Reflex-cortex connections. *Psychological Science*, *3*, 44-49.
- Lang, P. J., Greenwald, M. K., Bradley, M. M., & Hamm, A. O. (1993). Looking at pictures: Affective, facial, visceral, and behavioral reactions. *Psychophysiology*, *30*, 261-273.
- Patrick, C. J., Bradley, M. M., & Lang, P. J. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology*, *102*, 82-92.
- McNeil, D. W., Vrana, S. R., Melamed, B. G., Cuthbert, B. N., & Lang, P. J. (1993). Emotional imagery in simple and social phobia: Fear versus anxiety. *Journal of Abnormal Psychology*, *102*, 212-225.
- Hamm, A. O., Greenwald, M. K., Bradley, M. M., & Lang, P. J. (1993). Emotional learning, hedonic change, and the startle probe. *Journal of Abnormal Psychology*, *102*, 453-465.

- Bradley, M. M., Lang, P. J., & Cuthbert, B. N. (1993). Emotion, novelty, and the startle reflex: Habituation in humans. *Behavioral Neuroscience, 107*, 970-980.
- Bradley, M. M., Cuthbert, B. N., & Lang, P. J. (1993). Pictures as prepulse: Attention and emotion in startle modification. *Psychophysiology, 30*, 541-545.
- Lang, P. J. (1994). The varieties of emotional experience: A meditation on James-Lange theory. *Psychological Review, 101*, 211-221.
- Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry, 25*, 49-59.
- Patrick, C. J., Cuthbert, B. N., & Lang, P. J. (1994). Emotion in the criminal psychopath: Fear image processing. *Journal of Abnormal Psychology, 103*, 523-534.
- Lang, P. J. (1995). The emotion probe: Studies of motivation and attention. *American Psychologist, 50*, 372-385.
- Bonnet, M., Bradley, M. M., Lang, P. J., & Requin, J. (1995). Modulation of spinal reflexes: Arousal, pleasure, action. *Psychophysiology, 32*, 367-372.
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- Pastor, M. C., Bradley, M. M., Rehbein, M. A., Junghöfer, M., El-Hinnawi, N., & Lang, P. J. (2014). Single-trial aversive learning with neutral faces or objects [Abstract]. *Psychophysiology*, *51*, S42.
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- Lang, P. J., McTeague, L. M., & Bradley, M. M. (2015). From fear to anxious misery: Developing a defense circuit dimensional classifier [Poster]. *Anxiety and Depression Association of America*.
- McTeague, L. M., Laplante, M-C., Bradley, M. M., & Lang, P. J. (2015). Reflex physiology & the anxiety disorder spectrum: The paradox of subjective & objective responding [Poster]. *Society of Biological Psychiatry*.
- Clayson, P. E., Hamilton, H. K., Jasperse, L. J., Bradley, M. M., Lang, P. J., Bachman, P., ... Yee, C. M. (2015). Recognition memory for affective images in schizophrenia [Abstract]. *Psychophysiology*, *52*, S33.
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- Herring, D. R., Bradley, M. M., Duncan, C. M., & Lang, P. J. (2015). Functional brain activity during personally-relevant emotional imagery [Abstract]. *Psychophysiology*, *52*, S69.

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- Sapigao, R. G., Bradley, M. M., & Lang, P. J. (2015). Scene perception and pupil diameter: Specific content and perceptual composition [Abstract]. *Psychophysiology*, *52*, S42.
- Sege, C. T., Bradley, M. M., & Lang, P. J. (2015). Getting ready to escape: Blink startle modulation and autonomic reactivity [Abstract]. *Psychophysiology*, *52*, S69.
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- Bradley, M. M. (2016). Orienting in defense: Attention, selection, and memory [Abstract]. *International Journal of Psychophysiology*, *108*, 9.
- Henderson, R., Bradley, M. M., Sege, C., Dominguez, V., Hillbrandt, K., Sambuco, N., Keil, A., & Lang, P. J. (2017). Alpha power and emotional reactivity during narrative imagery [Abstract]. *Psychophysiology*, *54*, S156.
- Hillbrandt, K., Dominguez, V., Keil, A., Kirschbaum, C., Bradley, M. M., & Lang, P. J. (2017). Hair cortisol concentration in the study of anxiety and depression [Abstract]. *Psychophysiology*, *54*, S165.
- Sambuco, N., Bradley, M. M., Sege, C., Hillbrandt, K., Henderson, R. R., & Lang, P. J. (2017). Anxiety on the brain: Emotional scene viewing and neural activation [Abstract]. *Psychophysiology*, *54*, S100.
- Sege, C., Bradley, M. M., & Lang, P. J. (2017). Avoidance and escape: Individual differences in defensive behavior [Abstract]. *Psychophysiology*, *54*, S151.
- Sambuco, N., Bradley, M. M., Hillbrandt, K., Dominguez, V., & Lang, P. J. (2018). Functional brain response during imagery in social phobia [Poster]. *Anxiety and Depression Association of America*.
- Sambuco, N., Bradley, M. M., Herring, D., & Lang, P. J. (2018). Emotional perception and imagery: Overlapping and distinct neural networks. *Psychophysiology*, *55*, S43. 58th Annual Meeting for the Society for Psychophysiological Research, Quebec City, Quebec, Canada, October 3-7, 2018.
- Thigpen, N., Bradley, M. M., & Keil, A. (2018). Assessing the relationship between pupil diameter and visuocortical activity. *Psychophysiology*, *55*, S60. 58th Annual Meeting for the Society for Psychophysiological Research, Quebec City, Quebec, Canada, October 3-7, 2018.
- Lanser, I., Lake, J., Hamilton, H., Clayson, P., Bradley, M. M., Lang, P. J., ... Yee, C. (2018). Cardiac responses associated with enhanced recollection memory for emotional stimuli in schizophrenia. *Psychophysiology*, *55*, S81. 58th Annual Meeting for the Society for Psychophysiological Research, Quebec City, Quebec, Canada, October 3-7, 2018.
- Sege, C., Bradley, M. M., & Lang, P. J. (2018). Avoidance and escape: Motive activation when preparing defensive behavior. *Psychophysiology*, *55*, S97. 58th Annual Meeting for the Society for Psychophysiological Research, Quebec City, Quebec, Canada, October 3-7, 2018.
- Sambuco, N., Bradley, M. M., Hillbrandt, K., Dominguez, V., & Lang, P. J. (2018). Trauma and functional brain activity during emotional imagery. *Psychophysiology*, *55*, S106. 58th Annual Meeting for the Society for Psychophysiological Research, Quebec City, Quebec, Canada, October 3-7, 2018.

Selected Invited Presentations and Symposia (of hundreds):

- Lang, P. J. (March 6, 2009). *The Psychophysiology of Emotion*. Invited Colloquium at the University of South Florida, Tampa, Florida.
- Bradley, M. M., Cuthbert, B. N., Sabatinelli, D., Keil, A., & Lang, P. J. (April 24, 2009). *Visual Perception and Emotion Processing*. Symposium at the International Congress on Event-Related Potentials of the Brain, Bloomington, Indiana.
- Lissek, S. (October 21, 2009). Symposium: *Toward a unified account of fear-potentiated startle findings in the anxiety disorders and affiliated traits*. Lang, P.J., Discussant. Society for Psychophysiological Research, 49th meeting, Berlin, Germany.
- McTeague, L. M., Lang, P. J., Laplante, M-C., Shumen, J. R., Bradley, M. M., Cuthbert, B. C. *The image of fear: Anxiety diagnosis, negative affectivity, and the reflex physiology of defense*. Symposium presentation, October 21, 2009, SPR, 49th annual meeting, Berlin Germany.
- Lang, P. J. (October 26, 2009). *Emotion and Motivation: The Mammalian Brain Model in Human Research*. Invited address at the Ellison Foundation Workshop on Neurobiology of Emotion Regulation and Affective Disorders. The Rockefeller University, New York, N.Y.
- Lang, P. J. (October 21-23, 2010). Invited address: *Fear and desire: Activating motivational circuits in the human brain*. Presentation at the Collaborative Research Center (636) Symposium: Learning, memory, and brain plasticity: Implications for psychopathology, Mannheim Castle, Germany.
- Lang P. J. (February 3-4, 2011). Invited address: *The Psychophysiology of Emotion*. Presented at the conference, Affective Regulation and the Neuroscience of Emotion (ARNE). Nobel Forum, Stockholm, Sweden.
- Lang, P. J. (May 27, 2011). Grand Rounds: DSM-IV and the reflex physiology of fear: Symptom patterns across the anxiety disorder spectrum. UF Department of Psychiatry, Gainesville, Florida
- Lang, P. J. (September 30, 2013). Symposium: Questions and answers on the past and future of Psychophysiology: A farewell homage to Luciano Stegagno. University of Padova Department of General Psychology, Padova, Italy.
- Lang, P. J. (November 1, 2013). Case Conference: The Research Domain Criteria Initiative (RDoc) and the anxiety disorder spectrum: Current research and future aims. UF Department of Clinical & Health Psychology, Gainesville, Florida.
- Lang, P. J. (April 11, 2015) Symposium: What will RDoC studies of negative valence systems tell us about anxiety and depression? Annual Anxiety and Depression Conference, Miami, Florida.
- Lang, P. J. (November 4-6, 2015). Invited Symposium: A mechanism-based approach to mental disorder: Past, present and future. Symposium Collaborative Research Grant 636, Schwetzingen Castle, Germany.
- Lang, P. J. (August 31 – September 4, 2016). Invited Symposium: The pathophysiology of emotion: The anxiety disorder spectrum's biological dimension. 18th World Congress of the International Organization of Psychophysiology (IOP2016), Havana, Cuba.
- Lang, P. J. (May 18-20, 2016). Workshop: Neuroscience of emotions: Advanced course. Chapalimaud Centre for the Unknown, Lisbon, Portugal.
- Lang, P. J. (May 5, 2016). Symposium: Symposium der Fachgruppe Klinische Psychologie und Psychotherapie der DGPs. Universität Bielefeld, Bielefeld, Germany.
- Lang, P. J. (July 26, 2016). Address: IUPsyS 2016 Lifetime Career Award Address. 31st International Congress of Psychology, Yokohama, Japan.
- Lang, P. J. (October 17-18, 2016). Workshop: NIMH RDoC Investigator's Meeting. National Institute of Mental Health, Bethesda, Maryland.

Lang, P. J. (April 7, 2017). Colloquium: The startle-evoked potential: A brain measure of pathology severity in the anxiety and mood disorders. University of Florida Department of Clinical Health Psychology, Gainesville, Florida.

Lang, P. J. (May 15, 2019). Symposium: Advance of Science in the RDoc Paradigm. *Neurobiology of the Anxiety and Mood Disorders: An RDoC Analysis*. Symposium presentation, 74th Annual Biological Psychiatry, Chicago, Illinois.

Contribution to International Science: UF Media Core distributions to labs worldwide

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (2008). International affective picture system (IAPS): Instruction manual and affective ratings. Technical Report A-5. Gainesville, FL. The Center for Research in Psychophysiology, University of Florida.

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1999). International affective picture system (IAPS): Instruction manual and affective ratings. Technical Report A-4. Gainesville, FL. The Center for Research in Psychophysiology, University of Florida.

Lang, P. J., Greenwald, M. K., & Bradley, M. M. (1990). The international affective picture system standardization procedure and initial group results for affective judgments: Technical report 1C. Gainesville, FL: The Center for Research in Psychophysiology, University of Florida.

Lang, P. J., Greenwald, M. K., & Bradley, M. M. (1988). The international affective picture system standardization procedure and initial group results for affective judgments: Technical report 1B. Gainesville, FL: The Center for Research in Psychophysiology, University of Florida.

Bradley, M. M., & Lang, P. J. (2010). Affective norms for English words (ANEW): Instruction manual and affective ratings, Technical report C-1. Gainesville, FL: The Center for Research In Psychophysiology, University of Florida.

Bradley, M. M., & Lang, P. J. (1999). Affective norms for English words (ANEW): Instruction manual and affective ratings, Technical report C-1. Gainesville, FL: The Center for Research In Psychophysiology, University of Florida.

Bradley, M.M., & Lang, P.J. (2007). Affective norms for English Text (ANET): Affective ratings of text and instruction manual. Technical report D-1, University of Florida, Gainesville, FL.

Bradley, M. M., & Lang, P. J. (1999). International affective digitized sounds (IADS): Stimuli, instruction manual, and affective ratings, Technical report B-2. Gainesville, FL: The Center for Research In Psychophysiology, University of Florida.

Doctoral Research Supervised (as advisor):

Reynolds, David J., Ph.D., 1961: An investigation of autonomic responses in schizophrenia.

Geer, James H., Ph.D., 1963: The effect of conditioning schedule and two different unconditioned stimuli on the acquisition and extinction of the conditioned cardiac response.

Sroufe, Lawrence, Ph.D., 1967: Learned stabilization of cardiac rate under varied conditions of respiratory control.

Melamed, Barbara G., Ph.D., 1969: The habituation of psychophysiological responses to tones, and to filmed fear stimuli under varying conditions of instructional set.

Hart, James, Ph.D., 1970: Physiological responses of anxiety neurotics and normal controls to simple signal and non-signal stimuli.

Connor, William, Ph.D., 1971: Counterconditioning of state anxiety by brief muscle relaxation training: A psychophysiological study.

Hastings, James, Ph.D., 1971: Cardiac and cortical responses to meaningful stimuli in a reaction time task.

Klorman, Rafael, Ph.D., 1972: Habituation of fear: Effects of intensity and stimulus order.

Gatchel, Robert, Ph.D., 1973: Frequency of feedback and learned heart rate control.

Weerts, Theodore, Ph.D., 1973: Physiological specificity in cognitive functioning.

- Smith, Samuel, Ph.D., 1974: The effects of feedback on self-disclosure in a dyadic interaction. (Initial supervisor: Barclay Martin).
- Gannon, Linda Z., Ph.D., 1975: Internal awareness, external feedback, and the voluntary control of heart rate.
- Lindholm, Julie M., Ph.D., 1975: Heart rate control and reaction time performance in human subjects.
- Cuthbert, Bruce N., Ph.D., 1976: Voluntary slowing of heart rate: A comparison of various techniques.
- Twentyman, Craig, Ph.D., 1978: The effects of information frequency and feedback timing on instructed heart rate speeding.
- Roberts, Mary Ann, Ph.D., 1979: A behavioral method for assessing activity level and attention span in hyperactive, aggressive, and normal boys. (Initial supervisor: Roberta Ray).
- Sievers, Sherman L., Ph.D., 1980: Acute schizophrenic heart rate responses during reaction time. (Initial Supervisor: Victor Brokema).
- Simons, Robert F., Ph.D., 1980: The psychophysiology of the schizotype: Electrodermal, electrocortical, heart rate, and eye tracking characteristics of subjects reporting physical anhedonia or body image distortions.
- Hodes, Robert L., Ph.D., 1981: A psychophysiological investigation of the classical conditioning model of fears and phobias.
- McLean, Alvin, Ph.D., 1981: Emotional imagery: Stimulus information, imagery ability and patterns of physiological response.
- Kozak, Michael J., Ph.D., 1982: The psychophysiological effects of training on variously elicited imaginings.
- Levin, D. N., Ph.D., 1982: The psychophysiology of fear reduction: Role of response activation during emotional imagery.
- Miller, Gregory A., Ph.D., 1982: Information processing deficits in anhedonia and perceptual aberration: A psychophysiological analysis.
- Galbraith, John R., Ph.D., 1982: A psychophysiological evaluation of the specific and unique relationship between cephalic muscle activity and the classification of tension headache. (Initial supervisor: Richard McFall).
- Cook, Edwin W., III, Ph.D., 1983: Human classical conditioning and the preparedness hypothesis.
- Vrana, Scott R., Ph.D., 1988: Sentence imagery: Attention, emotion, and the startle reflex.
- Spence, Ellen, Ph.D., 1992: Psychophysiology and memory: The encoding and retrieval of affective text.
- Greenwald, Mark K., Ph.D., 1992: Aversive learning: Individual differences and psychophysiological response.
- McManis, Mark, Ph.D., 1995: Children's psychophysiological responses to affective pictures.
- Sabatinelli, Dean, 2001, Ph.D. (Co-advisor, Bradley) Functional activity in visual cortex : affective picture processing in women
- McTeague, Lisa M., Ph.D., 2007: A psychophysiological analysis of imagery ability and narrative engagement.
- Costa, Vincent D., Ph.D., 2011: (Co-advisor, Bradley) Cognitive Regulation and Reversal of Fear : Reflex Physiology and Neural Activation
- Sege, Christopher, Ph.D., 2017: Avoidance and escape as defensive reactions.
- Henderson, Robert, Ph.D., 2018: Alpha Power during Emotional Imagery: Associations with Psychopathology and the Startle Evoked Potential.

Note: Dozens of national and international post-doctoral and post-baccalaureate research associates have trained at the UF Center for the Study of Emotion and Attention from 1995-2018.