

## Publication list for Dominik R. Bach (August 2018)

### (1) Research articles

#### Forthcoming

Tzovara A, Korn CW & **Bach DR** (2018). Human Pavlovian fear conditioning conforms to probabilistic learning. *PLOS Computational Biology*, *in press*.

#### 2018

**Bach DR**, Korn CW, Vunder J, Bantel A (2018). Effect of valproate and pregabalin on human anxiety-like behaviour in a randomised controlled trial. *Translational Psychiatry*, *8*, 157.

**Bach DR**, Tzovara A, Vunder J (2018). Blocking human fear memory with the matrix metalloproteinase inhibitor doxycycline. *Molecular Psychiatry*, *23*, 1584–1589.

Korn CW & **Bach DR** (2018). Heuristic and optimal policy computations in the human brain during sequential decision-making. *Nature Communications*, *9*, 325.

Staib M & **Bach DR** (2018). Stimulus-invariant auditory cortex threat encoding during fear conditioning with simple and complex sounds. *Neuroimage*, *166*, 276-284.

Gerster S, Namer B, Elam M, **Bach DR** (2018). Testing a linear time invariant model for skin conductance responses by intraneural recording and stimulation. *Psychophysiology*, *55*, e12986.

#### 2017

Homan P, Lin Q, Murrough JW, Soleimani L, **Bach DR**, Clem RL, Schiller D (2017). Prazosin during threat discrimination boosts memory of the safe stimulus. *Learning & Memory*, *24*, 597-601.

Khemka S, Barnes G, Dolan RJ, **Bach DR** (2017). Dissecting the function of hippocampal oscillations in a human anxiety model. *Journal of Neuroscience*, *37*, 6869-6876.

Korn CW, Vunder J, Miro J, Fuentemilla L, Hurlmann R, **Bach DR** (2017). Amygdala lesions reduce anxiety-like behavior in a human benzodiazepine-sensitive approach-avoidance conflict test. *Biological Psychiatry*, *82*, 522-531.

Abivardi A & **Bach DR** (2017). Deconstructing white matter connectivity of human amygdala nuclei with thalamus and cortex subdivisions in vivo. Human Brain Mapping, 38, 3927-3940.

**Bach DR**, Symmonds M, Barnes G, Dolan RJ (2017). Whole-brain neural dynamics of probabilistic reward prediction. Journal of Neuroscience, 37, 3789-3798.

Korn CK, Staib M, Tzovara A, Castegnetti G, **Bach DR** (2017). A pupil size response model to assess fear learning. Psychophysiology, 54, 330-343.

Castegnetti G, Tzovara A, Staib M, Gerster S, **Bach DR** (2017). Assessing fear learning via conditioned respiratory amplitude responses. Psychophysiology, 54, 215-223.

Khemka S, Tzovara A, Gerster S, Quednow BB, **Bach DR** (2017). Modelling startle eye blink electromyogram to assess fear learning. Psychophysiology, 54, 202-214.

**Bach DR** (2017). The cognitive architecture of anxiety-like behavioural inhibition. Journal of Experimental Psychology: Human Perception and Performance, 43, 18-29.

## **2016**

**Bach DR**, Gerster S, Tzovara A, Castegnetti G (2016). A linear model for event-related respiration responses. Journal of Neuroscience Methods, 270, 174-155.

Korn CW & **Bach DR** (2016). A solid frame for the window on cognition: Modeling event-related pupil responses. Journal of Vision, 16, 28.

Castegnetti G, Tzovara A, Staib M, Paulus PC, Hofer N, & **Bach DR** (2016). Modeling fear-conditioned bradycardia in humans. Psychophysiology, 53, 930-939.

Paulus PC, Castegnetti G, & **Bach DR** (2016). Modeling event-related heart period responses. Psychophysiology, 53, 837-846.

## **2015**

**Bach DR** (2015). Anxiety-like behavioural inhibition is normative under environmental threat-reward correlations. PLOS Computational Biology, 11, e1004646.

Korn CW & **Bach DR** (2015). Maintaining Homeostasis by Decision-Making. PLOS Computational Biology, 11, e1004301.

**Bach DR**, Hurlemann R, Dolan RJ (2015). Impaired threat prioritisation after selective bilateral amygdala lesions. *Cortex*, 63, 206-213.

**Bach DR** (2015). A cost minimisation and Bayesian inference model predicts startle reflex modulation across species. *Journal of Theoretical Biology*, 370, 53-60.

**Bach DR**, Staib M (2015). A matching pursuit algorithm for inferring tonic sympathetic arousal from spontaneous skin conductance fluctuations. *Psychophysiology*, 52, 1106-12.

**Bach DR**, Furl N, Barnes G, Dolan RJ (2015). Sustained Magnetic Responses in Temporal Cortex Reflect Instantaneous Significance of Approaching and Receding Sounds. *PLOS ONE*, 10, e0134060.

**Bach DR**, Seifritz E, Dolan RJ (2015). Temporally unpredictable sounds exert a context-dependent influence on evaluation of unrelated images. *PLOS ONE*, 10, e0131065.

Staib M, Castegnetti G, **Bach DR** (2015). Optimising a model-based approach to inferring fear learning from skin conductance responses. *Journal of Neuroscience Methods*, 255, 131-138.

## 2014

**Bach DR**, Guitart-Masip M, Packard PA, Miró J, Falip M, Fuentemilla L, Dolan RJ (2014). Human hippocampus arbitrates approach-avoidance conflict. *Current Biology*, 24, 541-547.

Pooresmaeli A, FitzGerald THB, **Bach DR**, Toelch U, Ostendorf F, Dolan RJ (2014). Crossmodal effects of value on perceptual acuity and stimulus encoding. *PNAS*, 111, 15244-15429.

**Bach DR**, Schmidt-Daffy M, Dolan RJ (2014). Facial expression influences face identity recognition during the attentional blink. *Emotion*, 14, 1007-1013.

Toelch U, **Bach DR**, Dolan RJ (2014). The neural underpinnings of an optimal exploitation of social information under uncertainty. *Social Cognitive and Affective Neuroscience*, 9, 1746-1753.

**Bach DR** (2014). A head-to-head comparison of SCRalyze and Ledalab, two model-based methods for skin conductance analysis. *Biological Psychology*, 103, 63-88.

Bulganin L, **Bach DR**, Wittmann BC (2014). Prior fear conditioning and reward learning interact in fear and reward networks. *Frontiers in Behavioral Neuroscience*, 8, 67.

Pooresmaeli A, **Bach DR**, Dolan RJ (2014). The effect of visual salience on memory-based choices. *Journal of Neurophysiology*, 111, 481-487.

## 2013

**Bach DR**, Friston KJ, Dolan RJ (2013). An improved algorithm for model-based analysis of evoked skin conductance responses. *Biological Psychology*, 94, 490-497.

**Bach DR**, Hurlemann R, & Dolan RJ (2013). Unimpaired discrimination of fearful prosody after amygdala lesion. *Neuropsychologia*, 51, 2070-2074.

## 2012

Bauer M, Kluge C, **Bach D**, Bradbury D, Heinze HJ, Dolan RJ, & Driver J (2012). Cholinergic enhancement of visual attention and neural oscillations in the human brain. *Current Biology*, 22, 397-402.

Campbell-Meiklejohn DK, Kanai R, Bahrami B, **Bach DR**, Dolan RJ, Roepstorff A, & Frith CD (2012). Structure of orbitofrontal cortex predicts social influence. *Current Biology*, 22, R123-R124.

Chumbley JR, Flandin G, **Bach DR**, Daunizeau J, Fehr E, Dolan RJ, & Friston KJ (2012). Learning and Generalization under Ambiguity: An fMRI Study. *PLOS Computational Biology*, 8 (1).

## 2011

Symmonds M, Wright ND, **Bach DR**, & Dolan RJ (2011). Deconstructing risk: Separable encoding of variance and skewness in the brain. *Neuroimage*, 58, 1139-1149.

Klein-Flügge MC, Hunt LT, **Bach DR**, Dolan RJ, & Behrens TEJ (2011). Dissociable Reward and Timing Signals in Human Midbrain and Ventral Striatum. *Neuron*, 72, 654-664.

**Bach DR**, Weiskopf N, & Dolan RJ (2011). A stable sparse fear memory trace in human amygdala. *Journal of Neuroscience*, 31, 9383-9389.

Guitart-Masip M, Fuentemilla L, **Bach DR**, Huys QJM, Dayan P, Dolan RJ, & Duzel E (2011). Action dominates valence in anticipatory representations in the human striatum and dopaminergic midbrain. *Journal of Neuroscience*, 31, 7867-7875.

**Bach DR**, Talmi D, Hurlemann R, Patin A, & Dolan RJ (2011). Automatic relevance detection in the absence of a functional amygdala. Neuropsychologia, *49*, 1302-1305.

**Bach DR**, Hulme O, Penny W, & Dolan RJ (2011). The known unknowns: Neural representation of second-order uncertainty, and ambiguity. Journal of Neuroscience, *31*, 4811-4820.

Nicolle A, **Bach DR**, Frith C, & Dolan RJ (2011). Amygdala involvement in self-blame regret. Social Neuroscience, *6*, 178-89.

Nicolle A, Fleming SM, **Bach DR**, Driver J, & Dolan RJ (2011). A Regret-Induced Status Quo Bias. Journal of Neuroscience, *31*, 3320-3327.

**Bach DR**, Buxtorf K, Strik WK, Neuhoff JG, & Seifritz E (2011). Evidence for impaired sound intensity processing in schizophrenia. Schizophrenia Bulletin, *37*, 426-431.

**Bach DR**, Behrens TE, Garrido L, Weiskopf N, Dolan RJ (2011). Deep and superficial amygdala nuclei projections revealed in vivo by probabilistic tractography. Journal of Neuroscience, *31*, 618-23.

**Bach DR**, Daunizeau J, Kuelzow N, Friston KJ, & Dolan RJ (2011). Dynamic causal modelling of spontaneous fluctuations in skin conductance. Psychophysiology, *48*, 252-57.

Nicolle A, **Bach DR**, Driver J, & Dolan RJ (2011). A Role for the Striatum in Regret-related Choice Repetition. Journal of Cognitive Neuroscience, *23*, 845-56.

## **2010**

Fitzgerald TH, Seymour B, **Bach DR**, & Dolan RJ (2010). Differentiable Neural Substrates for Learned and Described Value and Risk. Current Biology, *20*, 1823-29.

**Bach DR**, Daunizeau J, Friston KJ, & Dolan RJ (2010). Dynamic causal modelling of anticipatory skin conductance responses. Biological Psychology, *85*, 163-70.

Campbell-Meiklejohn DK, **Bach DR**, Roepstorff A, Dolan RJ, & Frith CD (2010). How the Opinion of Others Affects our Valuation of Objects. Current Biology, *20*, 1165-70.

**Bach DR**, Friston KJ, & Dolan RJ (2010). Analytic measures for quantification of arousal from spontaneous skin conductance fluctuations. International Journal of Psychophysiology, *76*, 52-55.

**Bach DR**, Flandin G, Friston KJ, & Dolan RJ (2010). Modelling event-related skin conductance responses. International Journal of Psychophysiology, *75*, 349-356.

**Bach DR**, Kindler J, & Strik WK (2010). Elevated bilirubin in acute and transient psychotic disorder. Pharmacopsychiatry, *43*, 12-16.

## 2009

**Bach DR**, Seymour B, & Dolan RJ (2009). Neural activity associated with the passive prediction of ambiguity and risk for aversive events. Journal of Neuroscience, *29*, 1648-1656.

**Bach DR**, Flandin G, Friston KJ, & Dolan RJ (2009). Time-series analysis for rapid event-related skin conductance responses. Journal of Neuroscience Methods, *184*, 224-234.

**Bach DR**, Neuhoff JG, Perrig W, & Seifritz E (2009). Looming sounds as warning signals: the function of motion cues. International Journal of Psychophysiology, *74*, 28-33.

Herdener M, Lehmann C, Esposito F, Di Salle F, Federspiel A, **Bach DR**, Scheffler K, & Seifritz E (2009). Brain responses to auditory and visual stimulus offset: Shared representations of temporal edges. Human Brain Mapping, *30*, 725-733.

**Bach DR**, Herdener M, Grandjean D, Sander D, Seifritz E, & Strik WK (2009). Altered lateralisation of emotional prosody processing in schizophrenia. Schizophrenia Research, *110*, 180-187.

**Bach DR**, Buxtorf K, Grandjean D, & Strik WK (2009). The influence of emotion clarity on emotional prosody identification in paranoid schizophrenia. Psychological Medicine, *39*, 927-936.

## 2008

**Bach DR**, Grandjean D, Sander D, Herdener M, Strik WK, & Seifritz E (2008). The effect of appraisal level on processing of anger and fear prosody in meaningless speech. Neuroimage, *42*, 919-927.

**Bach DR**, Schächinger H, Neuhoff JG, Esposito F, DiSalle F, Lehmann C, Herdener M, Scheffler K, & Seifritz E (2008). Rising sound intensity: An intrinsic warning cue activating the amygdala. Cerebral Cortex, *18*, 145-150.

## 2007

**Bach DR** & Erdmann G (2007). Influences of habitual and situational bodily symptom focusing on stress responses. Cognition and Emotion, *21*, 1091-1101.

Herry C\*, **Bach DR\***, Esposito F, Di Salle F, Perrig WJ, Scheffler K, Luthi A, & Seifritz E (2007). Processing of temporal unpredictability in human and animal amygdala. Journal of Neuroscience, *27*, 5958-5966. \* equal contribution

Lehmann C, Herdener M, Schneider P, Federspiel A, **Bach DR**, Esposito F, Di Salle F, Scheffler K, Kretz R, Dierks T, & Seifritz E (2007). Dissociated lateralization of transient and sustained blood oxygen level-dependent signal components in human primary auditory cortex. Neuroimage, *34*, 1637-1642.

Herdener M, Esposito F, Di Salle F, Lehmann C, **Bach DR**, Scheffler K, & Seifritz E (2007). BOLD correlates of edge detection in human auditory cortex. Neuroimage, *36*, 194-201.

## 2006

**Bach DR**, Erdmann G, Schmidtman M, & Monnikes H (2006). Emotional stress reactivity in irritable bowel syndrome. European Journal of Gastroenterology and Hepatology, *18*, 629-636.

Andresen V, Poellinger A, Tsrouya C, **Bach D**, Stroh A, Foerschler A, Georgiewa P, Schmidtman M, van der Voort I, Kobelt P, Zimmer C, Wiedenmann B, Klapp BF, & Monnikes H (2006). Cerebral processing of auditory stimuli in patients with irritable bowel syndrome. World Journal of Gastroenterology, *12*, 1723-1729.

Lehmann C, Herdener M, Esposito F, Hubl D, Di Salle F, Scheffler K, **Bach DR**, Federspiel A, Kretz R, Dierks T, & Seifritz E (2006). Differential patterns of multisensory interactions in core and belt areas of human auditory cortex. Neuroimage, *31*, 294-300.

## 2005

Andresen V, **Bach DR**, Poellinger A, Tsrouya C, Stroh A, Foerschler A, Georgiewa P, Zimmer C, & Monnikes H (2005). Brain activation responses to subliminal or supraliminal rectal stimuli and to auditory stimuli in irritable bowel syndrome. Neurogastroenterology and Motility, *17*, 827-837.

## 2004

Osmanoglou E, van der Voort I, Fach K, Kosch O, **Bach D**, Hartmann V, Strenzke A, Weitschies W, Wiedenmann B, Trahms L, & Mönnikes H (2004). Oesophageal transport of solid dosage forms depends

on body position, swallowing volume and pharyngeal propulsion velocity. Neurogastroenterology and Motility, 16, 547-556.

## **(2) Review papers**

**Bach DR**, Castegnetti G, Korn CW, Gerster S, Melinscak F, Moser T (2018). Psychophysiological modelling - current state and future directions. Psychophysiology, in press.

**Bach DR**, & Dayan, P (2017). Algorithms for survival: a comparative perspective on emotions. Nature Reviews Neuroscience, 18, 311-319.

Freund P, Friston K, Thompson AJ, Stephan KE, Ashburner J, **Bach DR**, Nagy Z, Helms G, Draganski B, Mohammadi S, Schwab ME, Curt A, Weiskopf N. (2016). Embodied neurology: an integrative framework for neurological disorders. Brain, 139, 1855-1861.

Stephan KE, **Bach DR**, Fletcher PC, Flint J, Frank MJ, Friston KJ, Heinz A, Huys QJ, Owen MJ, Binder EB, Dayan P, Johnstone EC, Meyer-Lindenberg A, Montague PR, Schnyder U, Wang XJ, Breakspear M (2016). Charting the landscape of priority problems in psychiatry, part 1: classification and diagnosis. Lancet Psychiatry, 3, 77-83.

Stephan KE, Binder EB, Breakspear M, Dayan P, Johnstone E, Meyer-Lindenberg A, Schnyder U, Wang XJ, **Bach DR**, Fletcher PC, Flint J, Frank MJ, Heinz A, Huys QJM, Montague PR, Owen JM, Friston KJ (2016). Charting the landscape of priority problems in psychiatry, part 2: pathogenesis and aetiology. Lancet Psychiatry, 3, 84-90.

**Bach DR**, & Friston KJ (2013). Model-based analysis of skin conductance responses: Towards causal models in psychophysiology. Psychophysiology, 50, 15-22.

**Bach DR**, & Dolan RJ (2012). Knowing how much you don't know: a neural organization of uncertainty estimates. Nature Reviews Neuroscience, 13, 572-586.

## **(3) Peer-reviewed case reports**

**Bach DR**, Moggi F, Muller TJ, Seifritz E, Strik WK, & Wirtz G (2007). Possible genetic link between Darier's disease and depression : Review of the literature and case history. [Article in German.] Nervenarzt, 78, 81-84.



**Bach DR & Seifritz E (2005).** "Simple dissociative disorder" in Central Europe: a case report. European Psychiatry, 20, 572-573.

#### **(4) Peer-reviewed commentaries**

**Bach DR (2014).** Sympathetic nerve activity can be estimated from skin conductance responses - a comment on Henderson et al. (2012). Neuroimage, 84, 122-123.

**Bach DR & Friston KJ (2012).** No evidence for a negative prediction error signal in peripheral indicators of sympathetic arousal. Neuroimage, 16, 883-884.

#### **(5) Book chapters**

**Bach DR (2017).** Decision making under uncertainty. In: Reuter M & Montag C (Eds.). Neuroeconomics. Berlin: Springer. [ISBN 978-3-642-35922-4]

**Bach DR (2017).** Skin conductance measures in neuroeconomic research. In: Reuter M & Montag C (Eds.). Neuroeconomics. Berlin: Springer. [ISBN 978-3-642-35922-4]

**Bach DR, Pryce CR, & Seifritz E (2011).** The experimental manipulation of uncertainty. In: Raber J (Ed.). Animal models of behavioural analysis. New York: Springer. [ISBN 978-1-60761-883-6]

**Bach DR & Erdmann G (2008).** Subjective bodily symptoms during anticipation of public speaking: Influence of habitual symptom perception and actual symptom focusing. [Article in German]. In: Janke W, Schmidt-Daffy M, & Debus G (Eds.). Experimentelle Emotionspsychologie. Lengerich: Pabst. [ISBN 978-3-89967-450-7]

#### **(6) Books**

**Bach DR (2009).** Emotionale Effekte einer indirekten Amygdalastimulation beim Menschen. Berlin: dissertation.de