CECILIA DINIZ BEHN

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EDUCATION

Boston University, Boston, MA *2006*
PhD, Mathematics.
Advisors: Professors Nancy Kopell and Emery Brown.

University of Texas, Austin, TX *2002*
MA, Mathematics.
Advisor: Professor Oscar Gonzales.

Bryn Mawr College, Bryn Mawr, PA *1999*
AB, Mathematics, magna cum laude.
Honors thesis advisor: Professor Paul Melvin.

Technical University of Budapest, Budapest, Hungary *Spring 1998*
Budapest Semesters in Mathematics

PROFESSIONAL EXPERIENCE

Colorado School of Mines, Golden, CO
Department of Applied Mathematics & Statistics, Associate Professor *2019–present*
Department of Applied Mathematics & Statistics, Assistant Professor 2013-2019

University of Colorado School of Medicine, Denver, CO
Department of Pediatrics, Adjoint Associate Professor *2023-present*
Department of Pediatrics, Adjoint Assistant Professor 2014-2023

University of Colorado, Boulder, CO *2018–present*
Department of Integrative Physiology, Assistant Professor Adjunct

Gettysburg College, Gettysburg, PA *2011–2013*
Department of Mathematics, Assistant Professor

University of Michigan, Ann Arbor, MI *2007–2011*
Department of Mathematics, Term Assistant Professor

Harvard Medical School, Boston, MA *2006–2007*
Analysis and Modeling Unit of the Division of Sleep Medicine,
Postdoctoral Research Fellow
Advisors: Drs. Thomas Scammell and Elizabeth Klerman.

Boston University, Boston, MA *2002–2006*
Department of Mathematics, Graduate Research Assistant

University of Texas, Austin, TX *2001–2002*
Department of Mathematics, Graduate Research Assistant

Sandia National Laboratories, Albuquerque, NM *Summers, 1994–2001*

Divisions of Applied Mathematics/Optimization;
Laser and Computational Initiatives; and Analytical Chemistry, Summer intern

EXTERNAL FUNDING

Ongoing funding:

National Institutes of Health Grant R01DK129656 2022-2026
"Understanding the metabolic pathology of pediatric obesity and NAFLD," $2.4 million
Role: Co-Investigator (PI Kevin Short)

National Institutes of Health Grant T32 HL149646 2023-2024
"Transdisciplinary Training in Sleep and Circadian Research," $38,626
Role: Co-Investigator (PI Kenneth Wright)

Juvenile Diabetes Research Foundation 2-SRA-2022-1144-M-B 2022-2024
"Innovating methods for assessing insulin action in Type 1 diabetes," $445,816
Role: Co-Investigator (PI Kristen Nadeau)

Lumos Tech SBIR Award 2021-2024
"Enhancing Performance of Elite U.S. Army Soldiers Through Sleep Restoration: A Targeted Circadian Alignment Approach," $152,000
Role: Co-Principal Investigator (PI Biquan Luo)

National Science Foundation Grant DMS 1853511 2019-2023
"Collaborative Research: Nonsmooth Maps, Coupled Oscillators and Seasonal Variation of Sleep and Circadian Rhythms," $225,150
Role: Principal Investigator

National Science Foundation Grant DCCF 1839232 2018-2023
"RAISE-TAQS: Entanglement and information in complex networks of qubits," $986,000
Role: Co-Principal Investigator (PI Zhexuan Gong)

Completed funding:

Air Force Office of Scientific Research Grant FA9550-08-1-0111 2008-2011
"Modeling the Interactive Effects of the Circadian Pacemaker and the Sleep-Wake System," $408,253
Role: Co-Investigator (PI Victoria Booth)

National Science Foundation Grant DMS 1121361 2011-2014
"Dynamics of Sleep-Wake Regulation," $299,998
Role: Co-Principal Investigator (PI Victoria Booth)

Children's Hospital/Colorado School of Mines Collaboration Pilot Award 2014-2015
"Hepatic and Adipose Insulin Resistance in Polycystic Ovarian Syndrome," $20,000
Role: Co-Principal Investigator (Co-PI Melanie Cree Green)

University of Colorado Nutrition Obesity Research Center Pilot Award 2014-2015
"Hepatic and Adipose Insulin Resistance in Polycystic Ovarian Syndrome," $20,000
Role: Co-Investigator (PI Melanie Cree Green)

University of Colorado Center for Women's Health Pilot Award 2014-2015
"The Role of Circadian Factors & Sleep Disordered Breathing on Insulin Resistance in Girls with Polycystic Ovarian Syndrome," $20,000
Role: Co-Investigator (PI Stacey Simon)

Children's Hospital/Colorado School of Mines Collaboration Pilot Award 2015-2017
"Investigating the Relationship Between Circadian Phase and Insulin Resistance in Obese Adolescents," $30,000
Role: Co-Principal Investigator (Co-PI Stacey Simon)

Boettcher Webb-Waring Biomedical Research Award 2016-2017
"Non-invasive assessment of liver glucose metabolism in obese girls," $10,000
Role: Co-Investigator (PI Melanie Cree Green)

National Science Foundation Grant DMS 1412571 2014-2018
"Collaborative Research: Multiscale Modeling of the Physiological Interactions Between Sleep and Circadian Systems," $158,000
Role: Principal Investigator

Jazz Pharmaceuticals Investigator-Initiated Research 2017-2019
"Characterization of Disrupted Nighttime Sleep (DNS) in Pediatric Narcolepsy," $112,000
Role: Co-Investigator (PI Kiran Maski)

Children's Hospital/Colorado School of Mines Collaboration Pilot Award 2020-2021
"Innovating Methods to Assess Tissue-Specific Insulin Sensitivity in Type 1 Diabetes," $20,000
Role: Co-Principal Investigator (Co-PI Kristen Nadeau)

National Institutes of Health Grant R01HD087707 2017-2023
"Sensitivity of the Circadian Clock to Light in Early Childhood," $2.9 million
Role: Co-Investigator (PI Monique LeBourgeois)

HONORS

Mines W. M. Keck Mentorship Award - Graduate Student Mentor (2020)
Awarded each year to recognize extraordinary mentoring activities that go above and beyond regular advising.

Mines Teaching Award - Tenured/Tenure-track Faculty Category (2018)
Awarded each year to a member of the teaching faculty and a tenured or tenure-track faculty member to recognize superior teaching over several years.

Richard E. Kronauer Award for Excellence in Biomathematical Modeling (*2006*)
Prize awarded every 2-4 years at the SIAM Life Sciences conference to a graduate student or post-doctoral fellow who has made significant contributions to modeling circadian rhythmicity, sleep regulation, or neurobehavioral function.

National Physical Science Consortium Fellow (*1999–2005*)
Graduate fellowship awarded annually to promote diversity in the physical sciences and engineering.

Barry M. Goldwater Scholar for Science and Math (*1997–99*)

Scholarship awarded annually to promising undergraduates in science, mathematics, and engineering.

Charlotte Angas Scott Prize in Mathematics, Bryn Mawr College Commencement (*1999*)
Prize awarded annually to outstanding Bryn Mawr College undergraduate in mathematics on the recommendation of the Department.

TRAVEL AWARDS & OTHER MERIT-BASED SUPPORT

Santa Fe Institute workshop travel award, Santa Fe, NM (2024)
AWM Research Symposium travel award, Atlanta, GA (*2023*)
Santa Fe Institute workshop travel award, Santa Fe, NM (2019)
AWM Research Symposium travel award, Los Angeles, CA (*2017*)
Sleep Research Society travel award to attend NIDDK workshop, Bethesda, MD (*2015*)
Mathematical Biosciences Institute workshop travel award, Columbus, OH (*2013*)
AWM Research Symposium travel award, Santa Clara, CA (*2013*)
Frontiers in Mathematical Biology Young Investigators conference travel award, University of Maryland, College Park, MD (*2012*)
Fields Institute workshop travel award, Toronto, Canada (*2012*)
Mathematical Biosciences Institute workshop travel award, Columbus, OH (*2011*)
Poster prize, University of Michigan Systems Biology Symposium (*2011*)
Frontiers in Applied and Computational Mathematics travel award, Newark, NJ (*2010*)
NIH Sleep, Circadian and Respiratory Neurobiology Training Program Fellow (*2006–07*)
AWM workshop travel award, SIAM Annual Meeting, Boston, Massachusetts (*2006*)
Research assistantship, Boston University (Summers, *2002–2004*)
David Bruton, Jr. Fellow, UT Austin (*1999–2002*)

PUBLICATIONS & CONFERENCE PROCEEDINGS

Peer-reviewed journal articles:

[**49**] Garrish J; Chan CL; Nychka D; **Diniz Behn C**. *A physiologically-motivated Gaussian process model for insulin secretion reconstruction with uncertainty quantification*, in preparation.

[**48**] Duston A; Holtman S; Bowen AE; Cree MG; Nadeau K; Wright KP, Jr.; Simon S; **Diniz Behn C**. *Sex differences in circadian timing and biological night in adolescents*, in preparation.

[**47**] Maski K; Heckler G; Worhach J; Mylonas D; Boduch M; Szilagi K; Zhang B; **Diniz Behn C;** Scammell T; Stickgold R. *Impaired sleep-dependent memory consolidation in pediatric narcolepsy type 1*, submitted.

[**46**] Krawciw B; **Diniz Behn C;** Carr L. *The small-world effect for interferometer networks*, submitted.

[**45**] Ivanitskiy MI; Spies AF; Rauker T; Corlouer G; Mathwin C; Quirke L; Rager C; Shah R; Valentine D; **Diniz Behn C;** Inoue K; Wu Fung S. *Linearly structured world representations in maze-solving transformers,* submitted.

[**44**] Ivanitskiy MI; Shah R; Spies AF; Rauker T; Valentine D; Rager C; Quirke L; Mathwin C; Corlouer G; **Diniz Behn C;** Wu Fung S. *A configurable library for generating and manipulating maze datasets*, submitted.

[**43**] Athanasouli C; Stowe S; LeBourgeois M; Booth V; **Diniz Behn C**. *Data-driven mathematical modeling of sleep consolidation in early childhood*, submitted.

[**42**] Ha J; Chung ST; Springer M; Kim JY; Chen P; Cree MG; **Diniz Behn C**, Sumner AE; Arslanian S; Sherman AS. *Estimating insulin sensitivity and beta-cell function from the oral glucose tolerance test: validation of a new Insulin Sensitivity and Secretion (ISS) model*, AJP Endo, In Press.

[**41**] Finn E; Severn C; Pyle L; Garrish J; **Diniz Behn C**; Zeitler P; Sagel S; Nadeau K; Chan C. (2023) *Hypoglycemia in children and young adults with cystic fibrosis on glucose tolerance test vs continuous glucose monitor*, Ped Pulmonology, In Press.

[**40**] Stowe S; LeBourgeois M; **Diniz Behn C**. (2023) *Modeling the effects of napping and non-napping patterns of light exposure on the human circadian oscillator*, J Biol Rhythms, In Press.

[**39**] Garrish J; Chan CL; Nychka D; **Diniz Behn C**. (2023) *A Gaussian process model for insulin secretion reconstruction with uncertainty quantification: applications in cystic fibrosis*, SIAM J. Appl. Math, S65-S81.

[**38**] Hartstein LE; **Diniz Behn C**; Akacem LD; Wright KP, Jr.; Stowe S; LeBourgeois MK. (2023) *Evening light intensity and phase delay of the circadian clock in early childhood*, J Biol Rhythms, 38(1): 77-86.

[**37**] Athanasouli C; Kalmbach K; Booth V; **Diniz Behn C**. (2022) *Bifurcations in a three-state model of sleep-wake behavior under changing homeostatic sleep drive dynamics,* Math. Biosci., 355, 108929.

[**36**] Hampton GS; Bartlette K; Nadeau KJ; Cree-Green M; **Diniz Behn C.** (2022) *Mathematical modeling reveals differential dynamics of insulin action models on glycerol and glucose in adolescent girls with obesity*, Frontiers in Physiol., 13, 895118.

[**35**] Hartstein LE; Akacem LD; Wright KP, Jr.; **Diniz Behn C**; LeBourgeois MK (2022) *Evidence of circalunar rhythmicity in young children's melatonin levels*. J Sleep Research 32(2), e13635.

[**34**] Athanasouli C; Piltz S; **Diniz Behn C;** Booth V. (2022) *Bifurcations of sleep patterns due to homeostatic and circadian variation in a sleep-wake flip-flop model,* SIAM J. Appl. Dyn. Syst., 21(3): 1893-1929.

[**33**] Hartstein L; **Diniz Behn C;** Akacem L; Stack N; Wright, Jr. K; LeBourgeois M. (2022) *High sensitivity of melatonin suppression response to evening light in preschool-aged children,* J Pineal Research. E12780.

[**32**] Ware M; Kaar J; Scherzinger A; Lopez Paniagua D; **Diniz Behn C;** Bartlette K; Xie D; Rahat H; Garcia-Reyes Y; Carreau A-M; Nadeau K J; Cree-Green M. (2021) *High pancreatic fat is related to insulin resistance in adolescents with polycystic ovary syndrome and obesity,* Obesity, 30:191-200.

[**31**] Maski K; Colclasure A; Little E; Steinhart E; Scammell T; Navidi W; **Diniz Behn C**. (2021) *Stability of nocturnal wake and sleep stages defines CNS disorders of hypersomnolence*, SLEEP, 44: zsab021.

[**30**] Bartlette K; Carreau A-M; Xie D; Garcia-Reyes Y; Rahat H; Pyle L; Nadeau K J; Cree-Green M; **Diniz Behn C**. (2021) *Oral minimal model-based estimates of insulin sensitivity in obese youth depend on oral glucose tolerance test protocol duration,* Metabolism Open, 9:100078.

[**29**] Piltz S; Athanasouli C; **Diniz Behn C**; Booth V. (2020) *Mapping recovery from sleep deprivation,* Comm. Nonlin. Sci. and Num. Sim., 96: 105686.

[**28**] Piltz S; **Diniz Behn C**; Booth V. (2020) *Habitual sleep duration affects recovery from acute sleep deprivation: a modeling study*, J. Theor Biol, 504:110401.

[**27**] Carreau A-M; Xie D; Garcia-Reyes Y; Rahat H; Bartlette K; **Diniz Behn C**; Pyle L; Nadeau K J; Cree-Green M. (2020) *Good agreement between hyperinsulinemic-euglycemic clamp- and 2h oral minimal model-assessed insulin sensitivity in insulin resistant adolescent girls,* Pediatric Diabetes, 21(7): 1159 - 1168.

[**26**] Maski K; Pizza F; Liu S; Steinhart E; Little E; Colclasure A; **Diniz Behn C**; Vandi S; Antelmi E; Weller E; Plazzi G; Scammell T. (2020) *Defining disrupted nighttime sleep and assessing its diagnostic utility for pediatric narcolepsy Type 1*, SLEEP, 43(10).

[**25**] Stack N; Zeitzer J M; Czeisler C; **Diniz Behn C**. (2020) *Estimating group intrinsic period from illuminance-response curve data*, J. Biol Rhythms, 35(2):195-206.

[**24**] **Diniz Behn C**; Jin E; Bubar K; Malloy C; Parks E; Cree-Green M. (2020) *Advances in stable isotope tracer methodology part 1: hepatic metabolism via isotopomer analysis and post-prandial lipolysis modeling*, J. Invest Med, 68(1):3-10.

[**23**] Simon, S.L., **Diniz Behn, C**., Laikin, A., Kaar, J., Rahat, H., Cree-Green, M., Wright, K.P., Nadeau, K.J. (2020). *Sleep & circadian health are associated with mood & behavior in adolescents with overweight/obesity.* Behav Sleep Med, 18(4):550-559.

[**22**] Simon S; McWhirter L; **Diniz Behn C**; Bubar K; Kaar J; Pyle L; Rahat H; Garcia-Reyes Y; Carreau A-M; Wright K; Nadeau K; Cree-Green M. (2019) *Morning circadian misalignment is associated with insulin resistance in girls with obesity & Polycystic Ovarian Syndrome*, J. Clin Endo and Metab, 104(8):3525-3534.

[**21**] Simon S; **Diniz Behn C**; Cree-Green M; Kaar J; Pyle L; Hawkins S; Rahat H; Garcia-Reyes Y; Wright K; Nadeau K. (2018) *Too late and not enough: School year sleep duration, timing, and circadian misalignment are associated with reduced insulin sensitivity in adolescents with overweight/obesity*, J. Pediatrics, 205:257-264.

[**20**] Cree-Green M; Xie D; Rahat H; Garcia-Reyes Y; Bergman B; Scherzinger A; **Diniz Behn C**; Chan C; Kelsey M; Pyle L; Nadeau K. (2018) *Oral glucose tolerance test glucose peak time is most predictive of pre-diabetes and hepatic steatosis in obese girls,* J. Endocrine Soc., 2(6):547-562. PMID: 29942919.

[**19**] Stack, N; Barker, D; Carskadon, M; and **Diniz Behn, C**. (2017) *A model-based approach to optimizing ultradian forced desynchrony protocols for human circadian research*, J. Biol. Rhythms, 32:485-498. PMID: 28954576.

[**18**] Booth, V; Xique, I; **Diniz Behn, C**. (2017) *One-dimensional map for the circadian modulation of sleep in a sleep-wake regulatory network model for human sleep*, SIAM J. Appl. Dyn. Syst., 16:1089-1112.

[**17**] Lopp, S; Navidi W; Achermann, P; LeBourgeois, M; and **Diniz Behn, C**. (2017) *Developmental changes in ultradian sleep cycles across early childhood: preliminary insights*, J. Biol. Rhythms, 32:64-74. PMID: 28088873.

[**16**] Branch A; Navidi W; Tabuchi S; Terao A; Yamanaka A; Scammell T; and **Diniz Behn C**. (2016) *Progressive loss of the orexin neurons reveals dual effects on wakefulness*, SLEEP, 39:369-377. PMID: 26446125.

[**15**] Arble D; Bass J; **Diniz Behn C**; Butler M; Challet E; Czeisler C; Depner M; Elmquist J; Franken P; Grandner M; Keene A; Joyner M; Karatsoreos I; Kern P; Klein S; Morris C; Pack A; Panda S; Ptacek L; Punjabi N; Sassone-Corsi P; Scheer F; Seaquest E; Saxena R; Thimgan M; Van Cauter E; Wright K. (2015) *Impact of sleep and circadian disruption on energy balance and diabetes: A summary of workshop discussions,* SLEEP 38:1849-1860.

[**14**] Waldrop L; **Diniz Behn C**; Braley E; Drew J; Full R; Gross L; Jungck J; Kohler B; Prairie J; Shtylla B; Adolph S; and Miller L. (2015) *Using active learning to teach concepts and methods in quantitative biology*, Integr. Comp. Biol., 55(5):933-48. PMID: 26269460.

[**13**] Grabek K; **Diniz Behn C**; Barsh G; Hasselberth J; and Martin S. (2015) *Enhanced stability and polyadenylation of select mRNAs support rapid thermogenesis in the brown fat of a hibernator*, eLife, 4:e04517. PMID: 25626169.

[**12**] Booth V; **Diniz Behn C**. (2014) *Physiological modeling of sleep-wake regulatory networks*, Math. Biosci., 250:54:68. PMID: 24530893.

[**11**] Gleit R**; Diniz Behn C;** Booth V. (2013) *Modeling inter-individual differences in spontaneous internal desynchrony patterns*, J. Biol. Rhythms, 28:339-355. PMID: 24132060.

[**10**] **Diniz Behn C;** Ananthasubramaniam A; Booth V. (2013) *Contrasting existence and robustness of REM/Non-REM cycling in physiologically based models of REM sleep regulatory networks*, SIAM J. Appl. Dyn. Syst. 12:279-314.

[**9**] **Diniz Behn C** and Booth V. (2012) *A fast-slow analysis of the dynamics of REM sleep*, SIAM J. Appl. Dyn. Syst. 11:212-242.

[**8**] **Diniz Behn C**; Booth V. (2011) *Modeling the temporal architecture of rat sleep-wake behavior*, Conf. Proc. IEEE Eng. Med. Biol. Soc. 2011:4713-4716. PMID: 22255390.

[**7**] Fleshner M; Booth V; Forger D; **Diniz Behn C**. (2011) *Circadian regulation of sleep-wake behavior in nocturnal rats requires multiple signals from the suprachiasmatic nucleus required for*, Phil. Trans. Roy Soc. A. 369:3855-3883. PMID: 21893532.

[**6**] Williams K**; Diniz Behn C**. (2011) *Dynamic interactions between orexin and dynorphin may delay onset of functional orexin effects: a modeling study*, J. Biol. Rhythms 26:171-181. PMID: 21454297.

[**5**] **Diniz Behn C** and Booth V. (2010) *Simulating microinjection experiments in a novel model of the rat sleep-wake regulatory network,* J. Neurophysiol. 103:1937–1953. PMID: 20107121.

[**4**] **Diniz Behn C**; Klerman E; Mochizuki T; Lin S-C; Scammell T. (2010) *Abnormal sleep/wake dynamics in orexin knockout mice,* SLEEP 33:297–306. PMID: 20337187.

[**3**] **Diniz Behn C**; Kopell N; Brown E; Mochizuki T; Scammell T. (2008) *Delayed orexin signaling consolidates wake and sleep: physiology and modeling,* J. Neurophysiol. 99:3090–3106. PMID: 18417630.

[**2**] Best J; **Diniz Behn C**; Poe G; Booth V. (2007) *Modeling the structure and function of sleep,* J. Biol. Rhythms 22(3):220–232. PMID: 17517912.

[1] **Diniz Behn C**; Brown E; Scammell T; Kopell N. (2007) *A mathematical model of network dynamics governing mouse sleep-wake behavior*. J. Neurophysiol. 97(6):3828–40. PMID: 17409167.

Other journal articles:

[3] Ha J; Cree-Green M; Chung S; **Diniz Behn C.** (2022) *Editorial: Metabolic estimates during glucose challenge tests and continuous glucose monitoring – innovative and broad approaches to assessing glucose and insulin metabolism in diverse populations,* Front. Physiol. 13, 2654.

[2] Albers D; **Diniz Behn C;** Hripsak G. (2020) *Data assimilation in medicine*, SIAM News 53(7).

[1] **Diniz Behn C.** (2017) *The mathematics of the nap,* SIAM Online News.

Book chapters:

[3] Simens J; Cree-Green M; Bergman B; Nadeau K; and **Diniz Behn C**. (2018) *Structural identifiability analysis of a labeled oral minimal model for quantifying hepatic insulin resistance*, In: Price C; Deines A; Ferrero D; Graham E; Im M-S; Manore C, eds. *Advances in the Mathematical Sciences: Research from the 2017 Association for Women in Mathematics Symposium*. New York: Springer.

[2] **Diniz Behn C.** (2011) *Mathematical models of narcolepsy*. In: Baumann C; Scammell T; Bassetti C, eds. *Narcolepsy: Pathophysiology, Diagnosis, and Treatment*. New York: Springer.

[1] **Diniz Behn C** and Booth V. (2011) *A population network model of neuronal and neurotransmitter interactions regulating mammalian sleep-wake behavior*. In: Hutt A, ed. *Sleep and anesthesia: neural correlates in theory and experiment*. New York: Springer.

Published abstracts:

Ware M; Carreau A; Garcoa-Reyes Y; Rahat H; Diniz Behn C; Cree-Green M. (2022) *Reactive hypoglycemia following a sugar challenge is accompanied by higher insulin in adolescent girls with obesity*, J Invest Med 70(1), 230.

Stowe S; LeBourgeois M; **Diniz Behn C.** (2022) *Modeling the effects of napping and non-napping light schedules on the human circadian oscillator*, J Sleep Res 31.

Booth V; **Diniz Behn C.** (2022) *Mathematical models of REM sleep regulatory networks*, J Sleep Res 31.

Krawciw B; **Diniz Behn C;** Carr L. (2021) *Interferometer networks,* APS March Meeting Abstracts 2021: A36 007.

Hartstein L; Akacem L; **Diniz Behn C;** Stowe S; Wright, Jr. K; LeBourgeois M. (2021) *Evening light-induced circadian phase shift in preschool-aged children,* SLEEP: 44, A64-A64.

Maski KP; Colclasure A; Little E; Steinhart E; Scammell T; Navidi W; **Diniz Behn C** (2020) *Sleep stabilization patterns define pediatric CNS hypersomnia conditions*, SLEEP 43: Supplement A361-A362.

Pizza F; Maski K; Colclasure A; Steinhart E; Little E; Diniz Behn C; Vandil S; Antelmi E; Plazzi G; Scammell T. (2020) *Disrupted nighttime sleep (DNS) in pediatric narcolepsy*. Eur J Neurol 27: 516-516.

Maski KP; Pizza F; Colclasure A; Steinhart E; Little E; **Diniz Behn C**; Vandi S; Antelmi E; Plazzi G; Scammell T. (2020) *Defining disrupted nighttime sleep in pediatric narcolepsy*, SLEEP 43: Supplement A357-A358.

Hartstein L; Akacem L; Stack N; **Diniz Behn C**; Wright K; LeBourgeois M. (2019) *Light before bed and melatonin suppression in preschool-age children*, Neurophyschobiology 78(3):162-163.

Xie D; Carreau A-M; Garcia-Reyes Y; Rahat H; Bartlette K; Diniz Behn C; Pyle L; Nadeau K J; Cree-Green M. (2019) *Validation of surrogate models to assess tissue and whole-body insulin resistance in high-risk adolescent girls*. J of Investigative Med 67(4):792-793.

Hartstein L; Akacem L; **Diniz Behn C**; Stack N; Wright K; LeBourgeois M. (2019) *Light-induced melatonin suppression in 3-4 year old children*, Sleep Medicine 64:S147-S148.

Maski KP; Colclasure A; Little E; Steinhart E; Scammell T; Navidi W; **Diniz Behn C**. (2019) *Sleep stabilization patterns define pediatric CNS hypersomnia conditions*, Sleep Medicine 64, S247.

Diniz Behn C; Bartlette K; Carreau A-M; Cree-Green M. (2019) *Quantifying insulin sensitivity in obese adolescent girls*, Society for Mathematical Biology.

Simon S; **Diniz Behn C**; Garcia-Reyes Y; Rahat H; Wright K; Nadeau K; Cree Green M. (2018) *Against the clock: morning circadian misalignment is associated with insulin resistance in adolescent girls with polycystic ovarian syndrome*. J Women's Health 27, 1429-1429.

Maski K; Steinhart E; Little E; **Diniz Behn C**.; Colclasure A; Scammell T. (2018) *Defining disrupted nighttime sleep (DNS) in pediatric narcolepsy*. Neurology 92, 15 Supplement.

Simon S; **Diniz Behn C**; Cree Green M; Rahat H; Hawkins S; Wright K; Nadeau K. (2018) *Insufficient and late sleep and circadian timing are associated with insulin resistance in adolescents with obesity*. SLEEP 41, A300-301.

Maski K; Little E; Steinhart E; Colclasure A; Scammell T; **Diniz Behn C**. (2018) *Defining disrupted nighttime sleep in pediatric narcolepsy*. SLEEP 41, A291.

Simon S; **Diniz Behn C**; Kaar J; Rahat H; Garcia-Reyes Y; Halbower A; Wright K; Nadeau K; Cree Green M. (2018) *School year circadian timing is associated with insulin resistance in obese girls*. SLEEP 41, A300-301.

Stack N; Carskadon M; Barker D; **Diniz Behn C**. (2017) *Optimizing ultradian forced desynchrony protocols to assess intrinsic circadian period.* SLEEP 40, A265.

Diniz Behn C.; Murray M; Booth V. (2016) *Multiscale mathematical modeling of vigilance state effects on the circadian clock*. Soc Neurosci Abstr online, Program No. 815.11.

Stack N; Booth V; **Diniz Behn C**. (2016) *Mathematical modeling of sleep architecture in adolescence.* SLEEP 39, A11.

Murray M; Booth V; **Diniz Behn C**. (2016) *Multiscale mathematical modeling of vigilance state effects on the circadian clock.* SLEEP 39, A61.

Simens J; Cree Green M; Bergman B; Nadeau K; and **Diniz Behn C**. (2016) *Modeling glycerol dynamics following an oral glucose challenge*, Endocrine Practice, 22(1) 36A.

Branch A; Navidi W; Tabuchi S; Yamanaka A; Scammell T; **Diniz Behn C**. (2014) *Analyzing sleep/wake architecture in mice with progressive orexin/hypocretin cell loss.* Soc Neurosci Abstr online, Program No. 549.08.

Booth V; Gleit R; **Diniz Behn C**. (2013) *Modeling spontaneous internal desynchrony of sleep-wake behavior and the circadian rhythm in humans.* Soc Neurosci Abstr online, Program No. 281.18.

Diniz Behn C and Booth V. (2013) *Implications of a mutually inhibitory network structure for ultradian cycling in human sleep.* SLEEP 36, A98.

Diniz Behn C; Pal D; Booth V. (2012) *Modeling the fine temporal structure of rapid eye movement sleep in rats.* SLEEP 35, A67.

Diniz Behn C; Pal D; Booth V. (2011) *Modeling the fine temporal architecture of rat sleep-wake behavior.* Soc Neurosci Abstr online, Program No. 721.05.

Diniz Behn C (2011) *Insights from mathematical modeling of sleep/wake behavior*. Sleep and Biol Rhyth 9, 221.

Diniz Behn C; Pal D; Vanini G; Lydic R; Mashour G; Booth V. (2010) *Modeling sleep-wake temporal architecture in multiple species to investigate underlying physiology of behavioral state regulation.* Soc Neurosci Abstr online, Program No. 300.18.

Diniz Behn C; Booth V. (2009) *Modeling the interaction between circadian and sleep-wake regulatory systems.* Soc Neurosci Abstr online, Program No. 376.29.

Williams K; **Diniz Behn C**. (2009) A Hodgkin-Huxley-type model orexin neuron. SLEEP 32, A25.

Diniz Behn C; Booth V. (2008) *Simulating microinjection of GABA agonists and antagonists in a novel model of the sleep-wake regulatory network.* Soc Neurosci Abstr online, Program No. 586.22.

Diniz Behn C; Mochizuki T; Lin S-C; Clark E; Klerman E; Nicolelis M; Scammell T. (2007) *State space analysis of sleep-wake behavior in wild type and orexin knockout mice*. Soc Neurosci Abstr online, Program No. 632.17.

Diniz Behn C; Brown E; Scammell T; Kopell N. (2006) *Modeling dynamics of sleep-wake behavior in wild type and orexin knockout mice.* Soc Neurosci Abstr online, Program No. 458.2.

Diniz Behn C; Brown E; Scammell T; Kopell N. (2006) *A possible mechanism for fragmented sleep-wake behavior in orexin knockout mice.* SLEEP 29, 664.

Diniz Behn C; Brown E; Scammell T; Kopell N. (2005) *A mathematical model of network dynamics governing sleep-wake patterns in mice*. Soc Neurosci Abstr online, Program No. 512.36.

Dissertation/theses:

Diniz Behn C. *A mathematical model of network dynamics governing sleep-wake patterns in mice*, PhD Dissertation. Boston University, Boston, Massachusetts, 2006.

Diniz Behn C. *Effects of ideal configurations on the steady motions of knotted loops in viscous fluid,* Master's thesis. University of Texas at Austin, Austin, Texas, 2002.

Diniz C. *Quantum spin invariants of lens spaces,* Undergraduate Honors thesis. Bryn Mawr College, Bryn Mawr, Pennsylvania, 1999.

PRESENTATIONS & POSTERS

2023 Invited speaker, Department seminar, Department of Biomedical Informatics, Anschutz Medical Campus, Aurora, CO.

Poster presentation, Women's Health Symposium, Ludeman Family Center for Women's Health Research, Anschutz Medical Campus, Aurora, CO.

Invited speaker, Dynamics Days conference, virtual.

Colloquium speaker, Laboratory for Physical Sciences, College Park, MD, virtual.

Invited speaker, Association for Women in Mathematics Research Symposium, Atlanta, GA.

2022 Invited speaker, Applied Mathematics Seminar Series, University of Birmingham, Birmingham, United Kingdom.

Poster presentation, European Sleep Research Society Congress, Athens, Greece.

Invited speaker, Banff Institute for Research on the Mathematical Sciences, Banff, Canada.

Minisymposium speaker, SIAM Conference on Life Sciences, Pittsburgh, PA.

2021 Invited speaker, Analysis and Modeling Unit seminar, Harvard Medical School and Brigham & Women's Hospital, Boston, MA (held virtually).

Invited speaker, Workshop on Multilevel Dynamics of Human and Animal Sleep: Mathematical Models Meet Data, University of Surrey, Guildford, United Kingdom (held virtually).

2020 Invited speaker, Pediatric Endocrinology group meeting, Children's Hospital Colorado and University of Colorado Anschutz Medical Campus, Aurora, CO.

2019 Invited speaker, Santa Fe Institute, Santa Fe, NM.

Minisymposium speaker, Society for Mathematical Biology, Montreal, QC, Canada.

Minisymposium speaker, SIAM Conference on Applied Dynamical Systems, Snowbird, UT.

Invited speaker, Midwest Women in Math conference, Iowa City, IA.

Invited speaker, Experimental Biology, Orlando, FL.

2018 Minisymposium speaker, Joint Mathematics meeting, San Diego, CA.

Poster presentation, Gordon Conference on Sleep Regulation and Function, Galveston, TX.

Invited speaker, Advances in Nonsmooth Dynamics, University of Bristol, UK.

Invited speaker, Applied Mathematics seminar, University of Surrey, UK.

Minisymposium speaker, SIAM Life Sciences, Minneapolis, MN.

Poster presentation, International Narcolepsy symposium, Boston, MA.

Invited speaker, Applied Mathematics colloquium, Cornell University, Ithaca, NY.

2017 Invited speaker, Symposium honoring Emery N. Brown, Massachusetts Institute of Technology, Cambridge, MA.

Minisymposium speaker, SIAM Applications of Dynamical Systems, Snowbird, UT.

Minisymposium speaker, SLEEP Annual Meeting, Boston, MA.

Poster presentation, SLEEP Annual Meeting, Boston, MA.

Poster presentation, International Conference on Mathematical and Computational Neuroscience, Boulder, CO.

Invited speaker, Mathematics colloquium, Colorado College, Colorado Springs, CO.

Minisymposium speaker, Association for Women in Mathematics Research Symposium, Los Angeles, CA.

2016 Invited speaker, Applied Math Seminar, Colorado State University, Fort Collins, CO.

Minisymposium speaker, SLEEP Annual meeting, Denver, CO.

Invited speaker, Brigham and Women's Hospital and Harvard Medical School, Boston, MA.

Minisymposium speaker, SIAM Annual meeting, Boston, MA.

Poster presentation, Society for Neuroscience, San Diego, CA.

2015 Invited speaker, Society for Integrative and Comparative Biology Annual Meeting, West Palm Beach, FL.

Poster presentation, NIDDK workshop on "Impact of sleep and circadian disruption on energy balance and diabetes," National Institutes of Health, Bethesda, MD.

Invited speaker, Applied Math seminar, University of Colorado, Boulder, CO.

Invited speaker, Human Circadian Rhythms workshop, Lorentz Center, Leiden University, Leiden, The Netherlands.

2014 Invited speaker, Colorado Sleep and Circadian Research Symposia, University of Colorado, Boulder, CO.

Poster presentation, Society for Neuroscience annual meeting, Washington, DC.

Invited speaker, Applied Math seminar, Colorado State University, Fort Collins, CO.

2013 Invited speaker, Applied Math seminar, University of North Carolina, Chapel Hill, NC.

Invited speaker, Cyber Engineering Research Laboratory, Sandia National Laboratories, Albuquerque, NM.

Invited speaker, Applied Math seminar, Colorado School of Mines, Golden, CO.

Invited speaker, Cellular and Subcellular Workshop, Mathematical Biosciences Institute, Ohio State University, Columbus, OH.

Invited speaker, Applied Math seminar, University of Colorado Denver|Anschutz Medical Campus, Denver, CO.

Invited speaker, Department seminar, Pomona College, Claremont, CA.

Invited speaker, Department seminar, Bryn Mawr College, Bryn Mawr, PA.

Invited speaker, Association for Women in Mathematics Research Symposium, Santa Clara, CA.

Poster presentation, Society for Neuroscience annual meeting, San Diego, CA.

2012 Minisymposium organizer/speaker, SIAM Life Sciences conference, San Diego, CA.

Invited speaker, Associated Professional Sleep Societies annual meeting, Boston, MA.

Invited speaker, Frontiers in Mathematical Biology Young Investigators conference, University of Maryland, College Park, MD.

Invited speaker, Applied Math seminar, New Jersey Institute of Technology, Newark, NJ.

Invited speaker, Applied Math colloquium, Shippensburg University, Shippensburg, PA.

2011 Invited speaker, WorldSleep 2011, Congress of the World Sleep Federation, Kyoto, Japan.

Invited speaker, Radcliffe Institute Workshop, Harvard University, Cambridge, MA.

Poster presentation, Society for Neuroscience annual meeting, Washington, DC.

Minisymposium organizer/speaker, SIAM Applications of Dynamical Systems, Snowbird, UT.

Invited speaker, Mathematical Biology seminar, University of California, Davis, CA.

Invited speaker, Mathematics seminar, Christopher Newport University, Newport News, VA.

Invited speaker, Mathematics seminar, St. Olaf College, Northfield, MN.

Invited speaker, Mathematics seminar, Smith College, Northampton, MA.

Invited speaker, Mathematics seminar, Georgia State University, Atlanta, GA.

Invited speaker, Mathematics seminar, Gettysburg College, Gettysburg, PA.

Poster presentation, Mathematical Biosciences Institute, The Ohio State University, Columbus, OH.

Poster presentation, Systems Biology Symposium, University of Michigan, Ann Arbor, MI.

Invited speaker, ACM/MAA Lecture Series, Mount St. Mary's University, Emmitsburg, MD.

Invited speaker, Mathematics seminar, Franklin & Marshall College, Lancaster, PA.

2010 Poster presentation, Society for Neuroscience annual meeting, San Diego, CA.

Minisymposium organizer/speaker, SIAM-Life Sciences conference, Pittsburgh, PA.

Invited speaker, SIAM annual meeting, Pittsburgh, PA.

Selected speaker, Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, Rutgers, NJ.

Invited speaker, Mathematical Biosciences Institute special seminar, The Ohio State University, Columbus, OH.

Invited speaker, Mathematical Biology seminar, University of Utah, Salt Lake City, UT.

Invited speaker, Mathematics seminar, University of Michigan-Dearborn, Dearborn, MI.

Invited speaker, Mathematics seminar, Hampshire College, Amherst, MA.

2009 Poster presentation, Society for Neuroscience annual meeting, Chicago, IL.

Poster presentation, Systems Biology Symposium, University of Michigan, Ann Arbor, MI.

Invited speaker, International Symposium on Narcolepsy, Ascona, Switzerland.

Invited speaker, Mathematical Biology seminar, University of Michigan, Ann Arbor, MI.

Invited speaker, Biological Rhythms and Sleep seminar, University of Michigan, Ann Arbor, MI.

2008 Poster presentation, Society for Neuroscience annual meeting, Washington, DC.

Invited speaker, SIAM-Life Sciences conference, Montreal, Canada.

Invited speaker, Mathematical Biology seminar, Mathematical Biosciences Institute, The Ohio State University, Columbus, OH.

2007 Invited speaker, UM-MSU Math Biology conference, Michigan State University, East Lansing, MI.

Invited speaker, Research seminar, Boston University, Boston, MA.

Invited speaker, Sleep Trainee seminar, Harvard Medical School, Boston, MA.

Invited speaker, Mathematical Biology seminar, University of Michigan, Ann Arbor, MI.

Poster presentation, Society for Neuroscience annual meeting, San Diego, CA.

Invited speaker, Mathematical Biology seminar, University of Utah, Salt Lake City, UT.

2006 Invited speaker, SIAM-SMB Joint conference, Raleigh, NC.

Invited speaker, International Conference on Complex Systems, Boston, MA.

Invited speaker, Mathematical Biology seminar, University of Michigan, Ann Arbor, MI.

Poster presentation, Associated Professional Sleep Societies annual meeting, Salt Lake City, UT.

Poster presentation, Association for Women in Mathematics workshop, SIAM annual meeting, Boston, MA.

Poster presentation, Society for Neuroscience annual meeting, Atlanta, GA.

Invited speaker, Mathematics seminar, Worcester State College, Worcester, MA.

2005 Poster presentation, Society for Neuroscience annual meeting, Washington, DC.

Invited speaker, Research seminar, Boston University, Boston, MA.

Invited speaker, Graduate student dynamics seminar, Boston University, Boston, MA.

Poster presentation, SIAM conference for Applied Dynamical Systems, Snowbird, UT.

Invited speaker, Mathematics seminar, Bryn Mawr College, Bryn Mawr, PA.

2003 Invited speaker, Research seminar, Boston University, Boston, MA.

2002 Contributed presentation, SIAM Annual Meeting, Philadelphia, PA.

1999 Invited speaker, Division of Applied Mathematics/Optimization, Sandia National Laboratories, Albuquerque, NM.

ADVISING EXPERIENCE

Current graduate students

Justin Garrish: "Quantifying insulin sensitivity in patients with cystic fibrosis" (*Anticipated PhD, May 2023*)
Shelby Stowe: "Modeling light sensitivity in early childhood" (*Anticipated PhD, May 2024*)
Michael Ivanitskiy: "Interpretability in transformer models" (*Anticipated PhD, May 2025*)
Brandon Barton: "Network measures to detect dynamical phase transitions" (Anticipated MS, May 2024)

Graduated students

Jacqueline Simens: "Modeling hepatic and adipose insulin resistance in polycystic ovarian syndrome" (*MS, December 2015*)
Kelsey Kalmbach: "Map-based approaches for investigating sleep/wake dynamics" (*MS, December 2016*)
Nora Stack: "Adolescent sleep and the circadian pacemaker" (*MS, December 2016*)
"Applying mathematical models of human circadian rhythms for experimental design and data analysis" (*PhD, May 2019*)
Alicia Colclasure: "Modeling the functional role of orexin/hypocretin neurons" (*MS, May 2019*)
Kai Bartlette: "Modeling tissue-specific insulin resistance in adolescents" (*PhD, December 2020*)
William Robinson: "Mathematical modeling of interactions between melatonin and circadian dynamics" (*MS, May 2022*)
Benjamin Krawciw: "Complex-valued complex network measures for interferometer networks" (MS, May 2023)

Undergraduate research students

Colorado School of Mines Undergraduate Research Fellows

Sean Lopp: "Mathematical modeling of sleep and circadian rhythms" (*Fall 2014, Spring 2015*)
Abigail Branch: "Characterizing mouse sleep/wake architecture with progressive orexin cell loss" (*Spring 2014*)
Mollie Murray: "Investigating interactions between electrophysiology and the molecular clock in SCN neurons" (*Fall 2015, Spring 2016*)
Nicholas Koprowicz: "Mathematical modeling of salivary melatonin" (*Spring 2016*)
Kate Bubar: "Modeling mechanisms of circadian behavior in Per2 KO mice" (*Spring, Summer, Fall 2017, Fall 2018, Spring 2019*)
Vivian Wong: "Modeling circulation and metabolic rates in hibernators," co-advised with Dr. Karin Leiderman (*Summer 2017*)
Logan Weinman: "Investigating interactions between electrophysiology and the molecular clock in SCN neurons" (*Fall 2017, Spring 2018*)
Griffin Hampton: "Utilizing data assimilation to determine optimal OGTT duration for estimating insulin sensitivity" (*Spring 2019-Spring 2020*); "Modeling glycerol dynamics during an OGTT" (*Summer 2020-Spring 2022*)
James Dillinger: "Modeling androgen action on SCN VIP neurons" (*Fall 2020, Spring 2021*)
Benjamin Krawciw: "Network measures for interferometer networks" (*Spring 2021-Spring 2022*)
Brandon Barton: "Network measures for quantum applications" (*Spring 2022-Spring 2023*)
Armelle Duston de Viller: "Assessing circadian timing in adolescents" (*Summer 2022-present*)
Sydney Medina: "Assessing circadian timing in adolescents" (*Fall 2022-present*)
Mason Kugler: "Network measures for preferential attachment networks with complex-valued weights" (*Spring 2023-present*)

Colorado School of Mines Undergraduate and General Graduate Advising (*2013 – present*)
Advising for math majors and general graduate and undergraduate population

Gettysburg College Senior Capstone Theses (*2012-2014*)

Jennifer Donoghue: "Mathematical modeling of HIV infection in the human body"
Margaret Kelly: "Host-parasitoid interactions and the Nicholson-Bailey model"
Aleksandra Petkova: "Modeling human sleep/wake behavior in development"

Gettysburg College-HHMI Summer Research Fellow (*2013*)
Ziyi (Sirius) Xu: "Mathematical modeling of orexin neurons and adaptive glucose-sensing mechanism"

Gettysburg College Undergraduate Advising (*2012 – 2013*)
Advising for math majors and general undergraduate population

University of Michigan Research Experience for Undergraduates
Aparna Ananthasubramaniam: "Investigating the network structures underlying REM sleep generation" (*Summer 2010*)
Michelle Fleshner: "Integrating sleep and circadian rhythms" (*Summer 2009*)
and Independent study (*Winter 2010*)
Katherine Williams: "Hodgkin-Huxley-type model of an orexin (hypocretin) neuron" (*Summer 2008*)

Other formal mentoring of graduate students
Alfredo (Justice) Martinez, MSNT graduate student, Colorado School of Mines, mentor 2019-2020 (MS, 2020)
Claire Jordan, MSNT graduate student, Colorado School of Mines, mentor 2022-2023 (MS, 2023)
Colin Downs, MSNT graduate student, Colorado School of Mines, mentor 2022-2023 (MS, 2023)

Other formal mentoring of postdocs, and junior faculty
Dr. Yamuna Phal, Assistant Professor, Colorado School of Mines, mentor, 2023 – present
Dr. Lauren Hartstein, Postdoctoral fellow, University of Colorado, T32 mentor, 2020 – present
Dr. Kiran Maski, Assistant Professor, Boston Children's Hospital and Harvard Medical School, K23 mentor, 2019 - present
Dr. Sofia Piltz, Term Assistant Professor, University of Michigan, 2017-2020

Student/trainee awards and recognition
Brandon Barton: Quantum Engineering NSF Research Traineeship Fellowship, 2022; 2023. Participant in Long Program on Mathematics and Computational Challenges in Quantum Computing at the Institute of Pure and Applied Mathematics (IPAM), UCLA, Fall 2023, Los Angeles, CA.
Griffin Hampton: Ryan Sayers Memorial Award, 2020; SIAM Dynamical Systems Red Sock Award, 2020.
Lauren Hartstein: Sleep Research Society Trainee Award, 2021; Christian Guilleminault Young Investigator Award, 2021.
Benjamin Krawciw: Ryan Sayers Memorial Award, 2021
Shelby Stowe: NIH T32 Predoctoral Training Fellowship, 2023.

COURSES TAUGHT

Calculus I

Calculus II
Multivariable Calculus
Differential Equations
Linear Algebra
Scientific Computing
Mathematical Biology
Intermediate Differential Equations and Dynamics
Senior Capstone in Mathematics
Mathematical and Computational Neuroscience (undergraduate/graduate)
Differential Equations and Dynamical Systems (graduate)
Applied Analysis (graduate)

PROFESSIONAL SERVICE & OTHER ACTIVITIES

Organizing committee, Dynamics Days 2025 conference, Denver, CO 2024/5.

Minisymposium organizer, "Mathematical modeling applications in women's and children's health," at SIAM Annual Meeting and Conference on Life Sciences, Pittsburgh, PA, 2023/4.

Invited guest, "Inspired Teaching" podcast, 2023.

Guest editor, Frontiers in Physiology Special Topic, "Signaling Pathways and Brain Circuitry Underlying Circadian Rhythms and Sleep,"2023.

Organizer, Society for Women in Mathematics 10th Anniversary Conference, Golden, CO, 2023.

Workshop presenter, Girls Lead the Way, Golden, CO, 2023.

Workshop presenter, Arrupe Jesuit High School, Denver, CO, 2023.

External reviewer for faculty promotion, 2022.

Faculty advisor (2022-present); faculty participant (2013-2021), Society for Women in Mathematics at Colorado School of Mines, Golden, CO.

Minisymposium organizer, "Mathematical models of diabetes and clinical applications" at SIAM Annual meeting and Conference on Life Sciences, Pittsburgh, PA, 2022.

Session chair, "Mathematical modeling in metabolism" at the American Diabetes Association, New Orleans, LA, 2022.

Guest editor, Frontiers in Physiology Special Topic, "Metabolic Estimates during Glucose Challenge Tests and Continuous Glucose Monitoring – Innovative and Broad Approaches to Assessing Glucose and Insulin Metabolism in Diverse Populations,"2021.

Faculty, University of Colorado Sleep and Circadian Summer School, virtual/Boulder, CO, 2021.

Minisymposium organizer, "Dynamics and inference in mathematical physiology and biomedicine" at SIAM Conference on Applied Dynamical Systems, held virtually due to COVID-19, 2021.

External reviewer for faculty promotion, 2021.

Affiliated faculty, T32 Training grant for Transdisciplinary Training in Sleep and Circadian Research, University of Colorado, 2020 – present.

Faculty, University of Colorado Sleep and Circadian Summer School, virtual/Boulder, CO, 2020.

Review editor, SLEEP Advances, 2020 – present.

Minisymposium organizer, "Mathematical modeling for diagnosing and managing metabolic disease" at SIAM Conference on Life Sciences, held virtually due to COVID-19, 2020.

Grant review panelist, National Science Foundation Division of Molecular and Cellular Biosciences.

External examiner for Ph.D. thesis, University of Sydney, Sydney, Australia, 2019.

Poster session judge, Pediatric endocrinology annual research symposium, Aurora, CO, 2019.

Minisymposium organizer, "Recent Advances at the Intersection of Data Assimilation and Physiologically-Based Modeling for Clinical Applications" at SIAM Conference on Applied Dynamical Systems, Snowbird, UT, 2019.

Minisymposium organizer, "Recent advances in development and application of circadian pacemaker models" at SIAM Annual Meeting, Portland, OR, 2018.

Minisymposium organizer, "Combining mathematical models and data for clinical studies of diabetes" at SIAM Life Sciences conference, Minneapolis, MN, 2018.

Review editor, Frontiers in Neuroscience Sleep and Circadian Rhythms Editorial Board, 2018-present.

Grant review panelist, National Science Foundation Division of Mathematical Sciences.

Minisymposium organizer, "Mathematically –based insights into health and disease" at SIAM Central States Section conference, Fort Collins, CO, 2017.

Minisymposium organizer, "Novel applications of discrete maps in neuroscience" at SIAM Applications of Dynamical Systems conference, Snowbird, UT, 2017.

Mentor, Women's mentoring event at SIAM Applications of Dynamical Systems conference, Snowbird, UT, 2017.

Presenter, Discover STEM Camp for Middle School students, Colorado School of Mines, 2016.

Invited lecturer, q-Bio Summer School, Colorado State University, Fort Collins, CO, 2016.

Minisymposium organizer, "Advances in modeling sleep-wake behavior and circadian rhythms" at SIAM Life Sciences conference, Boston, MA, 2016.

Workshop organizer and participant, "Active Learning in Quantitative Biology," Society for Integrative and Comparative Biology Annual Meeting, West Palm Beach, 2015.

Minisymposium organizer, "Hysteresis in Neuroscience: Bursting and Beyond" at SIAM Life Sciences conference in San Diego, CA, 2012.

Member of Curricular Committee for Neuroscience, Gettysburg College, Gettysburg, PA, 2012-2013.

External reviewer for NSF-funded project for the Interdisciplinary Training for Undergraduates in Biological and Mathematical Sciences (UBM), Dickinson College, December 2012.

Minisymposium organizer, "Modeling Dynamics of Sleep-Wake Regulation" at SIAM Applications of Dynamical Systems conference in Snowbird, UT, 2011.

Minisymposium organizer, "Multi-scale Modeling of Mammalian Circadian Clocks" at SIAM Life Sciences conference, Pittsburgh, PA, 2010.

Minisymposium organizer, "Investigating Neural Mechanisms of Sleep and Anesthesia through Modeling" at SIAM Life Sciences conference, Montreal, Canada, 2008.

Ad hoc reviewer (Journal of Neurophysiology, Journal of Computational Neuroscience, Biophysical Journal, European Journal of Applied Math, Journal of Biological Rhythms, PLoS ONE, Journal of Theoretical Biology, Journal of Comparative Neurology, Mathematical Biosciences, SIAM Undergraduate Research Online, SLEEP, Bipolar Disorders, Journal of Computational and Applied Math, Neurobiology of Sleep and Circadian Rhythms), 2007–present.

Member of selection committee for Richard E. Kronauer Award for Excellence in Biomathematical Modeling, 2008–present.

Journal club organizer, Analysis and Modeling Unit of the Division of Sleep Medicine, 2006–2007.

Participant, "Workshop on New Approaches to Modeling Sleep/Wake Dynamics and Cognitive Performance" at the Mathematical Biosciences Institute at The Ohio State University, Columbus, OH, 2006.

Seminar organizer, "Geometric singular perturbation theory and canards," Boston University, Spring 2005.

Workshop presenter at math outreach events designed to encourage interest among elementary and middle school girls: Math Badge Day for Patriots Trail girl scouts (Boston, MA: 2003, 2004) and Expanding Your Horizons (Austin, TX: 2000, 2001).

UNIVERSITY AND DEPARTMENTAL SERVICE

Member, Research Advisory Board, VPRTT, 2021 – present.

Faculty advisor, Society for Women in Math, 2022 – present.

Chair, AMS Research Committee, 2023 – present.

Co-chair, AMS DI&A Committee, 2023 - present.

Director, AMS Mathematical Biology research group, 2015 – present.

Affiliated faculty, Quantitative Biosciences and Engineering program, 2021 – present.

Affiliated faculty, Quantum Engineering program, 2019 – present.

Member, QBE Curriculum Committee, 2021 - present.

Member, AMS DI&A Committee, 2022 – 2023.

Member, AMS Graduate committee, 2015 – 2022.

Member, AMS Modeling committee, 2019 – 2022.

Member, Biology at Mines Steering Committee (BioCharge), 2015 - 2021.

WORKSHOP PARTICIPATION

Participant, "EDGE (Enhancing Diversity in Graduate Education) 25th Anniversary Conference, Participant, "Justice Informatics," American Medical Informatics Association Symposium, Washington, D.C., 2022.

Participant, "Dynamics and Data Assimilation, Physiology and Bioinformatics: Mathematics at the Interface of Theory and Clinical Application," Banff Institute for Research on the Mathematical Sciences, Banff, Canada, 2022.

Participant, "Mathematical and Computational Approaches to Social Justice" ICERM, Brown University, Providence, RI and held virtually due to COVID-19, 2021.

Participant, "Workshop on Multilevel Dynamics of Human and Animal Sleep: Mathematical Models Meet Data," sponsored by the University of Surrey, Guildford, United Kingdom and held virtually due to COVID-19, 2020.

Participant, "What is sleep?" workshop, Santa Fe Institute, Santa Fe, NM, 2019.

Participant, "11th Annual Course Isotope Tracers in Metabolic Research: Principles and Practice of Kinetic Analysis", Vanderbilt University, Nashville, TN, 2018.

Participant, "Human Circadian Rhythms: Developing a Multi-Oscillator Framework," Lorentz Center, Leiden University, Leiden, The Netherlands, 2015.

Participant, "Impact of sleep and circadian disruption on energy balance and diabetes workshop," National Institutes of Health, Bethesda, MD, 2015.

Participant, "Workshop on Parameter Estimation for Biological Models," North Carolina State University, Raleigh, NC, 2014.

Participant, "Nonlinear dynamics and stochastic methods: from neuroscience to other biological applications conference (Bardfest)," University of Pittsburgh, Pittsburgh, PA, 2014.

Participant, "Cellular and Subcellular Workshop" at the Mathematical Biosciences Institute at The Ohio State University, Columbus, OH, 2013.

Participant, "Special Session on Mathematics for Human Physiology and Disease" at the Association for Women in Mathematics Research Symposium, Santa Clara, CA, 2013.

Participant, Anesthesiology/Sleep disorders workshop in Focus Program on "Towards Mathematical Modeling of Neurological Disease from Cellular Perspectives" at The Fields Institute, Toronto, Canada, 2012.

Participant, "Workshop on New Developments in Dynamical Systems Arising from the Biosciences" at the Mathematical Biosciences Institute at The Ohio State University, Columbus, OH, 2011.

PROFESSIONAL SOCIETIES

Society for Industrial and Applied Mathematics
American Medical Informatics Association
Sleep Research Society
American Diabetes Association
Association for Women in Mathematics
Society for Neuroscience