# CURRICULUM VITAE

**Ulrike Dydak**

Professor of Health Sciences
Director, Purdue Life Science MRI Facility
Associate Director, Women's Global Health Institute
University Faculty Scholar

School of Health Sciences, Purdue University
550 Stadium Mall Drive, West Lafayette, IN 47907
udydak@purdue.edu

---

## ***Education***

| | |
|---|---|
| 2002 | Ph.D. (Doctor of Sciences), Federal Institute of Technology (ETH) Zürich, Switzerland |
| | PhD thesis:„New approaches to Magnetic Resonance Spectroscopic Imaging of the Human Brain" |
| 1997-2002 | Ph.D. student at the Institute for Biomedical Engineering at the Federal Institute of Technology (ETH), Zürich, Switzerland |
| 1998-2000 | Postgraduate degree in Medical Physics, Federal Institute of Technology Zürich; Graduation as „Dipl. NDS ETHZ Medizinphysik" in October 2000; including training and certificate as expert for radiation protection |
| July 1996 | Mag.rer.nat (combined B.S and M.S.) in physics, University of Vienna, Austria; graduation with honors |
| 1995 - 1996 | Diploma Thesis (equivalent to Master thesis) in high energy physics at CERN, Switzerland |
| Summer 1994 | Summer Student at CERN, Switzerland |
| 1992 / 93 | exchange year at the University of California, Berkeley, US |
| 1990 – 1996 | studies in physics (major) and mathematics (minor) at the University of Vienna, Austria |

## ***Academic Positions***

| | |
|---|---|
| Since 2018 | Professor, School of Health Sciences, Purdue University, West Lafayette, IN, USA |
| Since 2014 | Courtesy Faculty, Department of Speech, Language and Hearing Sciences, Purdue University |
| Since 2008 | Adjunct Faculty, Department of Biomedical Engineering, IUPUI, Indianapolis, IN USA |
| Since 2007 | Adjunct Faculty, Department of Radiology and Imaging Sciences, Indiana University School of Medicine. Indianapolis, IN, USA |

| | |
|---|---|
| 2015 | Visiting Professor at the MR Center of Excellence, Department of Radiology and Nuclear Medicine, Medical University of Vienna, Vienna, Austria |
| 2013-2018 | Associate Professor, School of Health Sciences, Purdue University, West Lafayette, IN, USA |
| 2007 - 2013 | Assistant Professor, School of Health Sciences, Purdue University, West Lafayette, IN, USA |
| 2005 – 2007 | Adjunct Assistant Professor of Health Sciences, Purdue University, IN, USA |
| 2004 - 2008 | Member of the board of directors and staff member of GyroTools Ltd: responsible for MR education (courses, on-site trainings) |
| 2004 – 2007 | Research Associate and Project Leader of the MR Spectroscopy group at the Institute for Biomedical Engineering, ETH and University Zürich, Switzerland |
| July – Aug 2004 | Visiting Professor in the Dept. of Radiology at the University of Wisconsin, Madison, WI, USA |
| May– June 2004 | Visiting Professor in the Dept. of Medical Imaging at the University of Toronto, Canada |
| Nov 2003 | Co-Founder of the software and education company “GyroTools Ltd”, Zürich, Switzerland |
| 2002 - 2004 | Post-doctoral research fellow at the Institute for Biomedical Engineering, University and ETH Zürich; ad-hoc consultant for Philips Medical Systems for ‘on-site’ spectroscopy trainings at various hospitals |
| 1997 – 2002 | Research Assistant at the Institute for Biomedical Engineering, University and ETH Zürich, Switzerland |
| 1996 / 97 | High School Teacher (Gymnasium) for Physics and Mathematics in Innsbruck, Austria |
| Summer 1993 | Research Assistant at Lawrence Berkeley Laboratory, US |

***<u>Other Experience and Professional Memberships</u>***

| | |
|---|---|
| 2019-present | **Associate Director, Women’s Global Health Institute, Purdue University** |
| 2019-2020 | Fellow, Faculty Insights Forum, Leadership Training Program, Purdue University |
| 2019 | Charter member, NIH EITA Study Section |
| 2018-20 | Chair, Faculty Affairs Committee, College of Health and Human Sciences, Purdue University (Member: 2016-present) |
| 2018-19 | Chair, ISMRM Psychiatric MRS and MRI Study Group (member since 2016) |
| 2016-18 | Charter member, NIH MEDI Study Section |
| 2016-20 | Executive Board Member, ISMRM Psychiatric MRS and MRI Study Group |
| 2016-present | **Director, Purdue Life Science MRI Facility** |
| 2016-present | Associate Director, Purdue-IU Medical Physics Program |
| 2016-present | Member, Purdue Autism Research Center (PARC) |
| 2015-present | Member, American Association of Physicists in Medicine (AAPM) |
| 2014 | Ad-hoc member, NIEHS Neurodegenerative Application Review Special Emphasis Panel |
| 2012-2013 | Ad hoc member, NIH/MEDI Study Section |

| | |
|---|---|
| 2012-present | Member, Research Advisory Council, College of Health and Human Sciences, Purdue University |
| 2011-present | Associate Member, Purdue University Center for Cancer Research |
| 2009-present | Member, Society of Toxicology |
| 2002-2003 | Member, Organization for Human Brain Mapping |
| 2000-present | Member, International Society of Magnetic Resonance in Medicine (ISMRM) |
| 2004-2007 | Director and Faculty, Spectroscopy Application Course, GyroTools Ltd., Zurich Switzerland |
| 2005-2006 | Faculty, Advanced Spectroscopy Course, Philips Medical Systems US, Cleveland, OH, USA |
| 1999-2009 | Member, Swiss Society of Biomedical Engineering |
| 1998-2006 | Faculty, Spectroscopy Course, International Zurich Magnetic Resonance Education Center, Federal Institute of Technology (ETH) Zurich, Switzerland |

***Honors***

2020 Fellow, Faculty Insights Forum, Purdue University
2018 Outstanding Graduate Mentor Award, College of Health and Human Sciences, Purdue University
2018 Robert R. Landolt Excellence in Teaching Award
2017 Purdue Sigma Xi Chapter – Midcareer Research Award
2015 **Purdue University Faculty Scholar**
2015 Seed of Success Award, Purdue University
2011 **Outstanding New Environmental Scientist (ONES) Award, NIH/NIEHS**
2011 Robert R. Landolt Excellence in Teaching Award
2011 Seed of Success Award, Purdue University
2009 Molecular Imaging Travel Award, Radiological Society of North America
2008 Magna Cum Laude Award for Education Exhibit, Radiological Society of North America
2008 Best Poster Award for Psychiatric Diseases, ISMRM 2008
2005 ASFNR outstanding presentation award at the ASNR 2005
2003 Innovation award of the Swiss Society for Biomedical Engineering
2002 Travel Fellow, Human Brain Mapping Conference 2002, Sendai, Japan
2001 Student travel award, ISMRM 2001, Glasgow
2000 Poster award, European Society for Magnetic Resonance in Medicine and Biology, Paris
2000 Student travel award, ISMRM 2000, Denver

***Administrative Experience***

**2016-present** **Director, Purdue Life Science MRI Facility**
**Co-Director, Purdue MRI Facility**

In 2013 I led a group of over 21 faculty members from several Purdue colleges to successfully compete for an NIH S10 High-End Instrumentation Grant for a research-dedicated human 3T MRI scanner on Purdue campus, which was awarded in 2015. In 2015 I also was part of the Engineering Preeminent Team "Engineering Healthier Brains", which secured a second 3T Human MRI scanner (GE MRI750) for research to Purdue University. Consequently, I was majorly involved in the design of the new MRI building on campus and setting the structure of operations for the new Purdue MRI Facility. Since 2016, the NIH-funded Life Science MRI facility, together with the Engineering MRI facility and the Small Animal MRI Facility form the overall "Purdue MRI Facility".

- As director of the Life Science MRI Facility I supervise two staff members (Operations Manager and MR Technologist), and am responsible for finances, safety policies, research contracts with Siemens, usage reports to NIH and CTSI, and more. Under my leadership the Purdue Life Science facility has successfully supported many Purdue faculty members and their research, supported the submission of over 70 research grants and the success of over 40 grants, and has established training and MRI courses for our student body. One of the early highlights of the MRI facility was the hosting of the 5th Indiana Neuroimaging Symposium with over 100 attendees, which I organized and chaired in 2017.

**2019-present Associate Director, Women's Global Health Institute**

The WGHI aims to improve health and quality of life for women through the prevention and early detection of disease. In 2019 I was appointed to associate director, together with Dr. Dorothy Teegarden as director, to steer the WGHI in new directions. Since the WGHI is only supported through donations, fundraising is a large part of our administrative activities. We organize the annual *Women's Health Research Symposium,* fund pilot grants on women's health and prevention, promote interdisciplinary partnerships and organize invited seminars and outreach activities. A popular highlight of our activities is *the WGHI Interview Series* with multiple hundred registrants, held twice annually, featuring prominent female research leaders, on topics such as Sex, Gender and Covid (2020), Sexism in Science (2020) or the Covid Vaccine Development (2021).

**2012-2020 Research Council, Health and Human Sciences**

The Research Council of the College of Health and Human Sciences (CHHS) was established by the Associate Dean for Research (ADR), to serve in an advisory role for the ADR with direct representation of each of the nine units in HHS. After having served on the Ad Hoc Steering Committee to draft a strategic plan for the new College of HHS in 2011, I served on the research council since 2012, with a 1-year interruption in 2017. Amongst others, I was involved in defining strategic research themes for the College, reviewing college-internal grant applications, surveying faculty on how to improve the IRB process, and helping with diverse College initiatives to connect faculty across disciplines and promote the research done in our College.

**2015-present Member, CHHS Faculty Affairs Committee**
**2018-2020 Chair, CHHS Faculty Affairs Committee**

As member of the CHHS Faculty Affairs Committee I was involved in revising the College Bylaws, in particular with regard to the process of evaluation of administrators and the search for a new Dean, as well as implementing an amendment on faculty involvement in structural changes within college units. On a regular basis I solicit topics of particular concern from my faculty colleagues and brought them forward for discussion with the dean in our bi-annual meetings with the dean and reported back to my colleagues in the school. As member of the Agenda Committee, a sub-committee of the Faculty Affairs Committee, I help with setting the agenda and organizing the HHS Faculty meetings each semester.

**2016-present Associate Director, Purdue-IU Medical Physics Program**

Since 2016 I am part of the Steering Committee of the Purdue-IU Medical Physics Graduate Program, a CAMPEP accredited program which spans Purdue, IU School of Medicine and IU Bloomington. As Associate Director, I represent the Purdue branch of the program, and was involved in obtaining CAMPEP re-accreditation in 2017, implementation of required internships, regular updates of the curriculum, harmonization of the preliminary examinations for medical physics students, implementation of a consistent admission process across the campuses, organizing regular meetings between faculty and

students across the three sites, application for a certificate program and implementation of a Doctorate in Medical Physics (DMP), which is in progress.

**2017-2020 Executive Board Member, ISMRM Psychiatric MRI and MRS Study Group**

As executive board member of the ISMRM Psychiatric MRS and MRI Study Group, a specialty section of the International Society for Magnetic Resonance in Medicine (ISMRM), I rotated through the positions of Secretary and Vice-Chair, and currently serve as Chair. During my vice-chair term, the study group successfully competed for reinstatement of the study group, planning out activities for the next five years. As chair I developed a member-initiated Symposium proposal for the annual conference with international speakers on the topic of "Advances in Psychoradiology", which was accepted and will be held in May 2019. Furthermore, I organized the annual business meeting and a Virtual Workshop.

***Related Professional Experience & Service***

*Committees and other Administrative Activities*

*Conference Organizing Committees:*

- Co-Chair, Women's Health Research Symposium, Purdue University, Dec 8, 2021.
- Co-Chair, Women's Health Research Symposium, Sex Differences and Women's Health in the Covid-19 Pandemic, Purdue University, Nov 13, 2020.
- Co-Chair, Women's Health Research Symposium, Purdue University, Nov 1, 2019.
- Chair, ISMRM Member-initiated Symposium, Advances in Psychoradiology, ISMRM 27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019.
- Chair, Organizing Committee of the 5th Indiana Neuroimaging Symposium, Nov 3, 2017, at Purdue University
- Member, Organizing Committee of the 4th Indiana Neuroimaging Symposium, IU Bloomington, 2016
- Organizer & Chair, International Meeting of the Siemens X-Nuclei User Group, Montreal, Canada, 2011
- Member of the Organizing Committee for Indiana Neuroimaging Symposium, Indianapolis, April 24, 2008

*University level:*

- Member, Search Committee for the Purdue Institute for Integrative Neuroscience (PIIN) director, 2018
- Member and Departmental Liaison for the Purdue Institute for Integrative Neuroscience (PIIN), since 2017
- Member, Campus Grievance Steering Committee (2007-2008)

*College-level:*

- Member, Strategic Roadmap Committee, College of Health and Human Sciences, 2021 – present
- Member, Area Promotions Committee, College of Health and Human Sciences, 2018 - 2021
- Member, Search committee for the Associate Dean of Research, College of Health and Human Sciences, 2019
- Chair, Faculty Affairs Committee, College of Health and Human Sciences, 2018-present
- Member, Faculty Affairs Committee, College of Health and Human Sciences, 2015-present
- Member, Research Advisory Council, College of Health and Human Sciences, 2012-present
- Member, Agenda Committee, College of Health and Human Sciences, 2016-present
- Chair, Search Committee for MR Physicist and Operations Manager, CHHS, 2016-2017

- Chair, Search Committee for MR Technologist, CHHS & Engineering, 2016
- Member, Faculty Search Committee for Engineering Healthier Brains (Pre-Eminent Team), College of Engineering, 2016-2017
- Member, Steering Committee, College of Health and Human Sciences (2011)

*Department level:*

- Chair, Faculty Search Committee for an MRI Associate Professor, School of HSCI, 2021-22
- Member, Faculty Search Committee for a new MP faculty member, School of HSCI, 2021-22
- Member, Medical Physics Program Steering Committee, IU-Purdue MP Program
- Member, Health Sciences Graduate Committee, 2009-2010 & 2013-present
- Interim Director, Medical Physics Program, 2016
- Chair, Faculty Search Committee for MRI and Autism, School of HSCI & Autism Cluster, 2015-2016
- Member, HSCI Primary Committee, 2013-present
- Chair, Webpage and Library Committee, School of Health Sciences, Purdue University, 2010-2014
- Member, Nominations and Awards, School of Health Sciences, Purdue University, 2009-2010
- Review of ~20-50 Graduate Student Applications for Medical Physics each year, School of Health Sciences (2007 – present)

*Review for journals*

- Magnetic Resonance in Medicine (MRM)
- Journal of Magnetic Resonance Imaging (jMRI)
- Brain Imaging and Behavior
- Magnetic Resonance Imaging
- NMR in Biomedicine
- Neuroradiology
- Neurotoxicology
- Toxicological Sciences
- J. of Occup. And Environm. Medicine
- Journal of Cerebral Blood Flow and Metabolism
- Cell Biology and Toxicology
- Cephalalgia
- PLoS ONE
- Frontier in Neuroscience
- Frontiers in Aging Neuroscience
- Synapse
- Scientific Reports
- Neurobiology of Aging
- Parkinsonism & Related Disorders
- Int. Journal of Occ. Med. And Environ. Health

## ***Teaching Activity***

### *a) Classroom Teaching*

- undergraduate and graduate courses taught at the School of Health Sciences, Purdue University:
  *present:*
  - Magnetic Resonance Spectroscopy, 3 CR, spring semester, since 2020
  - Radiation Science Fundamentals, 3 CR, fall semester, since 2010 (class offered additionally as distance learning with Indiana University Bloomington from 2010 – 2015)

- MRI QA Internship I and II, 3 CR each, fall and spring, since 2011 (only fall since 2018)

*past:*

- Molecular Imaging, Part A: Magnetic Resonance Spectroscopy, 1 CR, spring semester, 2013-2019
- Radiation Instrumentation Laboratory, 2 CR, spring 2008-2010
- Applied Health Physics, 3 CR, fall 2008-2009
- Magnetic Resonance Spectroscopy, 1 CR, fall 2009 and spring 2011

♦ Lecturer at ISMRM Weekend Educational Courses (CME credit), 2008, 2009, 2017, 2021

♦ Invited Faculty at EDITINGSCHOOL, "Edited MRS: Practicalities of Acquisition" (lecture), 2018, 2020, 2021, 2022; *(2020: Best Teacher and Best Presentation Award)*

♦ Teaching in the Imaging Sciences Educational Workshop and the Clinical MRI Education Lectures (CME credit) at IU School of Medicine

♦ Teaching activity for GyroTools (http://www.gyrotools.com/courses/) :

- International MRS Application Course in Zuerich (yearly), 2004-2007
- On-site trainings, since 2004-2007

♦ Lecturer at the annual Course in Magnetic Resonance Spectroscopy, International Zurich Magnetic Resonance Education Center, 1998- 2006

♦ Lecturer at the annual Advanced Spectroscopy Course at Philips Medical Systems, Cleveland, US, 2005, 2006

♦ Guest lecturer at the University of Wisconsin, Madison (summer lecture series on MR Spectroscopy), 2004

♦ Lecturer at the Spectroscopy Application Workshops at Philips Medical Systems, Best, The Netherlands, 2002-2004

♦ Lecturer at the ETH Zurich on 'Statistics in Biomedical Engineering' (part of the course 'Biomedical Engineering I'), 2000 & 2001, 4h/course

♦ High School Teaching (Physics and Mathematics), Innsbruck, Austria, 1996-1997

***b) Advising of PhD and MS students at Purdue University and IUPUI:***

PhD students who graduated from my research group:

*Anshuman Panda* Medical Physics August 2012
Thesis: Fast 31P Magnetic Resonance Spectroscopic Imaging of The Liver: Clinical Implementation And Applications In Post-Radiation Therapy Response Monitoring

*Scott Jones* Medical Physics August 2013
Thesis: 3D 31P MRSI of Human Liver: A Spatially Resolved Study of Normal and Malignant Tissue In Response To Stereotactic Body Radiation Therapy

*Zaiyang Long* Medical Physics May 2013
Thesis: In Vivo Quantification Of GABA By Magnetic Resonance Spectroscopy And Its Applications In Panic Disorder And Manganese Neurotoxicity

*Victoria Poole* BME/BSDT August 2014 (Co-major professor)
Thesis: Magnetic Resonance Spectroscopy as A Tool to Track Sustained Neuro-Metabolic Changes Indicating Impairment In High School Contact Sport Athletes

*Shalmali Dharmadhikari* Medical Physics May 2015
Thesis: Imaging Specific Absorption Rate with MR Thermometry Using Paramagnetic Lanthanide Complexes And In Vivo GABA MR Spectroscopy In Movement Disorders

*Tony Clevenger* Physics August 2015 (Co-major professor)
Thesis: Advancement of 31P Magnetic Resonance Spectroscopy Using GRAPPA Reconstruction on a 3D Volume

*Eric J Ward* Occup. Health August 2017
Thesis: Exposure to Metal Mixtures in Welding Fume: Effects on Neurological Functions

*Ruoyun (Emily) Ma* Medical Physics August 2017
Thesis: Mapping *In Vivo* Neurotransmitter Concentrations in the Human Brain With 3D MR Spectroscopic Imaging: Alterations in Manganese-Induced Movement Disorders

*Chien-Lin Yeh* Medical Physics May 2018
Thesis: Quantitative MRI to Study in vivo Brain Manganese Deposition and Mn Neurotoxicity

*Eric Cameron* Medical Physics May 2019
Thesis: Differentiation and Evaluation of Disease Progressionin Essential Tremor Utilizing MRI Biomarkers

*David Edmondson* Imaging Sciences & Toxicology May 2019
Thesis: Identifying Imaging Biomarkers for Manganese Toxicity in Occupationally Exposed Welders

*Ahmad Alhulail* Medical Physics Aug 2020
Thesis: Fat and Sodium Quantification and Correlation by MRSI

Current Advising Activities:

*Major Professor (Primary Advisor) for 3 PhD students:*
- Humberto Monsivais, Medical Physics
- Brian Bozymski, Medical Physics
- Gianna Nossa, Neuroscience

*Co-Major Professor for 1 PhD student:*

- Aaron Andersen, Medical Physics, together with Dr. Indra Das

*Major Professor for 3 MS students:*
- Omar Alghanmi, Medical Physics
- Hatim Alharbi, Medical Physics
- Nathan Ooms, Medical Physics

*Research Advisor for 4 undergraduate students:*
- Khunsha Ahmed, Honors student, Health Sciences
- Philip Durham, Radiological Health Sciences, Health Sciences
- Grace Francis, Physics and Astronomy
- Lauren Stucky, Neurobiology and Physiology, Biology

*Member of Advisory Committee for 6 PhD students*
- Antonia Susnjar, PhD student, BME
- Chang Geun Lee, PhD student, Occupational Health Sciences
- Whitney Perez, PhD student, Medical Physics
- Sana Tabbasum, PhD student, Medical Physics
- Nicholas Farley, PhD student, Medical Physics
- Jinxia Yao, PhD student, BME

Past Advising Activities:

To date, I have graduated 10 PhD students as major professor, 6 additional PhD students as Co-major professor (two of which did their PhD thesis in my research group – see list above), and 19 MS students as major professor. Further I have served as member of the graduate advisory committee for additional 23 PhD and 36 MS students, and have mentored 18 MS research projects and 20 undergraduate research projects.

*Post-doctoral Fellows:*
- Eric Ward, PhD in Environmental Health Sciences, 2017
- Zaiyang Long, PhD in Medical Physics/Imaging, 2013-14
- Jun Xu, PhD in Chemistry, 2009-2013

*Visiting Scholars*
- Elham Azizi, M.D., 2015-2016
- Anne Lotz, PhD, Nov 2014
- Clara Quetscher, PhD candidate, Nov 2014
- Xiangrong Li, M.D., 2010

***Awards won by students supervised by Dr. Dydak***

Humberto Monsivais
- ISMRM Trainee Stipend, 2021, 2022
- Purdue GSO Travel Grant 2021
- Graduate Service Award, School of Health Sciences, Purdue University, 2021

Gianna Nossa

- Purdue GSO Travel Grant 2021

Khunsha Ahmed

- SOT Undergraduate Research Award, 2021

Ahmad Alhulail

- ISMRM Trainee Stipend, 2020
- Purdue Graduate Travel Grant, 2018
- Compton Graduate Travel Award, College of HHS, Purdue University, 2018

David Edmondson

- NIH F31 Ruth L. Kirschstein Predoctoral Fellowship Award
- SOT Computational Toxicology Graduate Student Award, 2019
- Outstanding Doctoral Student Award, College of Health and Human Sciences, Purdue University
- Kessler Graduate Student Award, School of Health Sciences, Purdue University, 2019
- ISMRM Psychiatric MRI & MRS Study Group Trainee Award, 1st place, 2019
- Purdue Teaching Academy Graduate Teaching Award, 2018
- Graduate Service Award, School of Health Sciences, Purdue, 2018
- Graduate Student Representative for Neurotoxicology Specialty Section, SOT, 2017
- ISMRM Student Travel Award 2017, 2018, 2019
- ISMRM Magna Cum Laude Award, 2017

Eric Cameron

- Purdue Teaching Academy Graduate Teaching Award, 2017
- ISMRM Student Travel Award, 2018
- Purdue Institute for Integrative Neurosciences Travel Grant, 2017
- 1st place Poster Competition, Purdue University Health and Disease, 2018
- Graduate Service Award, School of Health Sciences, Purdue, 2016

Eric Ward

– Elli Lilly IH Award, School of Health Sciences, Purdue, 2016

- Best Student Abstract (Honorable Mention), 15th EPICOH, Barcelona, Spain, 2016
- SOT Graduate Student Travel Award, 2015

Ruoyun Ma

- Kessler Graduate Student Award, School of Health Sciences, Purdue University, 2017
- ISMRM Magna Cum Laude Award, 2017
- ISMRM MRS Workshop Travel Award, 2016
- ISMRM Educational Stipend, 2014, 2015, 2016
- SOT Graduate Travel Award, 2015
- Compton Graduate Student award, College of HHS, Purdue University, 2015
- Graduate Service Award, School of Health Sciences, Purdue University, 2014

Chien-Lin Yeh

- ISMRM Education Stipend, 2014, 2016, 2017
- ISMRM Magna Cum Laude Award, 2016, 2017
- Compton Graduate Travel Award, College of Health and Human Sciences, 2015

Zaiyang Long

- Kessler Graduate Student Award, School of Health Sciences, Purdue University, 2013
- ISMRM Educational Stipend 2014, 2015
- Purdue Travel award, 2013

Shalmali Dharmadhikari

- Kessler Graduate Student Award, School of Health Sciences, Purdue University, 2014
- SOT Graduate Student Travel award, 2014
- Purdue PRF Fellowship, 2012, 2013
- ISMRM Education Stipend 2013, 2014, 2015
- Campbell-Klatte Imaging Sciences Travel Award, second place, 2013

Anshuman Panda

- Kessler Graduate Student Award, School of Health Sciences, Purdue University, 2012

- Campbell-Klatte Imaging Sciences Travel Award, first place, 2012

***List of Publications in Peer-Reviewed Journals:***

h-index: 33 i10-index: 59 Citations: 4808
(according to Google Scholar, March 2022)

*(underlined names are members from my research group; subscripts: 1 undergrad student, 2 graduate student, 3 postdoc/research associate)*
https://www.ncbi.nlm.nih.gov/myncbi/ulrike.dydak.1/bibliography/public/

1. Alhulail AA, Servati M, Ooms N, Akin O, Dincer A, Thomas MA, **Dydak U**, Emir UE. In Vivo Renal Lipid Quantification by Accelerated Magnetic Resonance Spectroscopic Imaging at 3T: Feasibility and Reliability Study. Metabolites. 2022 Apr 23;12(5):386.
2. Craven AR, Bhattacharyya PK, Clarke WT, **Dydak U**, Edden RAE, Ersland L, Mandal PK, Mikkelsen M, Murdoch JB, Near J, Rideaux R, Shukla D, Wang M, Wilson M, Zöllner HJ, Hugdahl K, Oeltzschner G. Comparison of seven modelling algorithms for γ-aminobutyric acid-edited proton magnetic resonance spectroscopy. NMR Biomed. 2022 Jan 25:e4702.
3. Hui SCN, Mikkelsen M, Zöllner HJ, Ahluwalia V, Alcauter S, Baltusis L, Barany DA, Barlow LR, Becker R, Berman JI, Berrington A, Bhattacharyya PK, Blicher JU, Bogner W, Brown MS, Calhoun VD, Castillo R, Cecil KM, Choi YB, Chu WCW, Clarke WT, Craven AR, Cuypers K, Dacko M, de la Fuente-Sandoval C, Desmond P, Domagalik A, Dumont J, Duncan NW, **Dydak U**, Dyke K, Edmondson DA[2], Ende G, Ersland L, Evans CJ, Fermin ASR, Ferretti A, Fillmer A, Gong T, Greenhouse I, Grist JT, Gu M, Harris AD, Hat K, Heba S, Heckova E, Hegarty JP 2nd, Heise KF, Honda S, Jacobson A, Jansen JFA, Jenkins CW, Johnston SJ, Juchem C, Kangarlu A, Kerr AB, Landheer K, Lange T, Lee P, Levendovszky SR, Limperopoulos C, Liu F, Lloyd W, Lythgoe DJ, Machizawa MG, MacMillan EL, Maddock RJ, Manzhurtsev AV, Martinez-Gudino ML, Miller JJ, Mirzakhanian H, Moreno-Ortega M, Mullins PG, Nakajima S, Near J, Noeske R, Nordhøy W, Oeltzschner G, Osorio-Duran R, Otaduy MCG, Pasaye EH, Peeters R, Peltier SJ, Pilatus U, Polomac N, Porges EC, Pradhan S, Prisciandaro JJ, Puts NA, Rae CD, Reyes-Madrigal F, Roberts TPL, Robertson CE, Rosenberg JT, Rotaru DG, O'Gorman Tuura RL, Saleh MG, Sandberg K, Sangill R, Schembri K, Schrantee A, Semenova NA, Singel D, Sitnikov R, Smith J, Song Y, Stark C, Stoffers D, Swinnen SP, Tain R, Tanase C, Tapper S, Tegenthoff M, Thiel T, Thioux M, Truong P, van Dijk P, Vella N, Vidyasagar R, Vovk A, Wang G, Westlye LT, Wilbur TK, Willoughby WR, Wilson M, Wittsack HJ, Woods AJ, Wu YC, Xu J, Lopez MY, Yeung DKW, Zhao Q, Zhou X, Zupan G, Edden RAE. Frequency drift in MR spectroscopy at 3T. *Neuroimage.* 2021 Nov 1;241:118430. PMID: 34314848; PMCID: PMC8456751.
4. Grecco GG, Chumin EJ, Dzemidzic M, Cheng H, Finn P, Newman S, **Dydak U**, Yoder KK* (2021). Anterior Cingulate Cortex Metabolites and White Matter Microstructure: A Multimodal Study of Emergent Alcohol Use Disorder. Brain Imaging Behav. 2021 Oct;15(5):2436-2444. PMCID: PMC8500944
5. Pierce S, Kadlaskar G, Edmondson DA[2], McNally Keehn R, **Dydak U**, Keehn B*. Associations between sensory processing and electrophysiological and neurochemical measures in children with ASD: An EEG-MRS study. *J Neurodev Disord. 2021 Jan 6;13(1):5. PMCID: PMC7788714*

6. Zou Y, Zhu W, Yang HC, Jang I, Vike NL, Svaldi DO, Shenk T, Poole VN, Breedlove EL, Tamer GG, Leverenz L, **Dydak U**, Nauman EA, Tong Y, Talavage TM, Rispoli JV. Development of brain atlases for early-to-middle adolescent collision-sport athletes. Scientific Reports 2021; 11:6440
7. Cheng H.*, Wang A, Newman S, **Dydak U**. An investigation of glutamate quantification with PRESS and MEGA-PRESS. NMR Biomed. 2021; 34(2):e4453
8. Pierce S, Kadlaskar G, Edmondson DA[2], McNally Keehn R, **Dydak U**, Keehn B. Associations between sensory processing and electrophysiological and neurochemical measures in children with ASD: an EEG-MRS study. *J Neurodev Disord. 2021; 13(1):5*. PMCID: PMC7788714
9. Lotz A, Pesch B, Casjens S, Lehnert M, Zschiesche W, Taeger D, Yeh CL[2], Weiss T, Schmitz-Wilcke T, Quetscher C, Gabriel S, Samis Zella MA, Woitalla D, Kraus PH, **Dydak U**, van Thriel C, Brüning T, Behrens T. Association of exposure to manganese and fine motor skills in welders – Results from the WELDOX II study. *Neurotoxicology 82(2021), 137-145.*
10. Alhulail AA[2], Xia P, Shen X, Nichols M, Volety S, Farley N, Thomas MA, Nagel AM, **Dydak U**, Emir UE. Fast In-Vivo 23Na Imaging and T2* mapping using accelerated 2D-FID UTE magnetic resonance spectroscopic imaging at 3 T: Proof of concept and reliability study. *Magn. Reson. Med. 2021; 85(4):1783-1794.* PMCID: PMC7832172
11. Ma RE[2], Murdoch JB, Bogner W, Andronesi O, **Dydak U**. Atlas-based GABA-mapping with 3D MEGA-MRSI: Cross-correlation to single voxel MRS. *NMR Biomed. 2021 May;34(5):e4275.* PMCID: PMC7438238
12. Edmondson DA[2], Yeh CL[2], Helie Sebastien, **Dydak U**. Whole-brain R1 predicts manganese exposure and biological effects in welders. *Arch Toxicol. 2020; 94(10), 3409-3420.* PMCID: PMC7581414.
13. Alhulail AA[2], Patterson DA, Xia P, Zhou X, Lin C, Thomas MA, **Dydak U**, Emir UE. Fat-Water Separation by Fast Metabolite Cycling Magnetic Resonance Spectroscopic Imaging at 3 T: A Method to Generate Separate Distribution Maps of Musculoskeletal Lipid Components. *Magn Reson Med. 2020 Sep;84(3):1126-1139.* PMCID: PMC7583348
14. Edmondson DA[2], Xia P[2], McNally Keehn R, **Dydak U**, Keehn B. A Magnetic Resonance Spectroscopy Study of Superior Visual Search Abilities in Children with Autism Spectrum Disorder. *Autism Res. 2020 Apr;13(4):550-562*. PMCID: PMC7688022 (impact factor 3.7)
15. Považan M*, Mikkelsen M, Berrington A, Bhattacharyya PK, Brix MK, Buur PF, Cecil KM, Chan KL, Chen DYT, Craven AR, Cuypers K, Dacko M, Duncan NW, **Dydak U**, Edmondson DA[2], Ende G, Ersland L, Forbes MA, Gao F, Greenhouse I, Harris AD, He N, Heba S, Hoggard N, Hsu TW, Jansen JFA, Kangarlu A, Lange T, Lebel RM, Li Y, Lin CE, Liou JK, Lirng JF, Liu F, Long JR, Ma R[2], Maes C, Moreno-Ortega M, Murray SO, Noah S, Noeske R, Noseworthy MD, Oeltzschner G, Porges EC, Prisciandaro JJ, Puts NAJ, Roberts TPL, Sack M, Sailasuta N, Saleh MG, Schallmo MP, Simard N, Stoffers D, Swinnen SP, Tegenthoff M, Truong P, Wang G, Wilkinson ID, Wittsack HJ, Woods AJ, Xu H, Yan F, Zhang C, Zipunnikov V, Zöllner HJ, Edden RAE, Barker PB. Comparison of multi-vendor, single-voxel MRS data acquired at 26 sites. Radiology. 2020 Feb 11:191037. doi: 10.1148/radiol.2020191037. [Epub ahead of print] (impact factor 7.608)Jang I, Chun Y II, Bari S, Breedlove EL, Cummiskey BR, Lee TA, Lycke RJ, Poole VN, Shenk TE, Svaldi DO, Tamer GG Jr, **Dydak U**, Leverenz LJ, Nauman EA, Talavage TM. Every Hit Matters: White Matter Diffusivity Changes in High School Football Athletes Are Correlated with Repetitive Head Acceleation Event Exposure. *Neuroimage Clin. 2019;24:101930. PMC6807364 (impact factor: 5.426*).

16. Newman SD, Cheng H, Schnakenberg Martin A, **Dydak U**, Dharmadhikari S[2], Hetrick W, O'Donnell B. An Investigation of Neurochemical Changes in Chronic Cannabis Users. *Front Hum Neurosci. 2019 Sep 19;13:318. PMC6761299, (impact factor: 2.840)*

17. Newman SD, Cheng H, Kim DJ, Schnakenberg-Martin A, **Dydak U**, Dharmadhikari S[2], Hetrick W, O'Donnell B. An investigation of the relationship between glutamate and resting state connectivity in chronic cannabis users. Brain Imaging Behav. 2019 Jul 13. doi: 10.1007/s11682-019-00165-w. [Epub ahead of print] *PMC6955389 (impact factor: 3.418)*

18. Edmondson DA[2], Ma RE[2], Yeh CL[2], Ward E[2], Snyder S, Azizi E, Zauber SE, Wells EM, **Dydak U**. Reversibility of neuroimaging markers influenced by lifetime occupational manganese exposure. *Toxicol Sci. 2019. Epub 2019/08/08. doi: 10.1093/toxsci/kfz174. PMC6813746 (impact factor: 3.564).*

19. Bartolomeo LA, Wright AM, Ma RE, Hummer TA, Francis MM, Visco AC, Mehdiyoun NF, Bolbecker AR, Hetrick WP, **Dydak U**, Barnard J, O'Donnell BF, Breier A. Relationship of auditory electrophysiological responses to magnetic resonance spectroscopy metabolites in Early Phase Psychosis. *Int J Psychophysiol. 2019 145:15-22. PMC6791740*

20. Wilson M, Andronesi O, Barker PB, Bartha R, Bizzi A, Bolan PJ, Brindle KM, Choi I-Y, Cudalbu C, **Dydak U**, Emir UE, González RG, Gruber S, Gruetter R, Gupta RK, Heerschap A, Henning A, Hetherington HP, Hüppi PS, Hurd RE, Kantarci K, Kauppinen RA, Klomp DW, Kreis R, Kruiskamp MJ, Leach MO, Lin AP, Luijten PR, Marjańska M, Maudsley AA, Meyerhoff DJ, Mountford CE, Mullins PG, Nelson SJ, Noeske R, Öz G, Pan JW, Peet AC, Poptani H, Posse S, Ratai EM, Salibi N, Scheenen TW, Smith IC, Soher BJ, Tkáč I, Vigneron DB, Howe FA (2019). A Methodological Consensus on Clinical Proton MR Spectroscopy of the Brain: Review and Recommendations. *Magn Res Med 2019 Aug;82(2):527-550.*

21. Mikkelsen M, Rimbault DL, Barker PB, Bhattacharyya P, Brix M, Buur P, Cecil K, Chan K, Chen D, Craven A, Cuypers K, Niall Duncan DM, **Dydak U**, Edmondson DA[2], Ende G, Ersland L, Forbes M, Gao F, Greenhouse I, Harris A, He N, Heba S, Hoggard N, Hsu TW, Jansen J, Kangarlu A, Lange T, Lebel M, Li Y, Lin CY, Liou JK, Lirng JF, Liu F, Long J, Ma R[2], Maes C, Moreno-Ortega M, Murray S, Noah S, Noeske R, Noseworthy M, Oeltzschner G, Porges E, Prisciandaro J, Puts N, Roberts T, Sack M, Sailasuta N, Saleh M, Schallmo MP, Simard N, Stoffers D, Swinnen S, Tegenthoff M, Truong P, Wang G, Wilkinson I, Wittsack HJ, Woods A, Xu H, Yan F, Zhang C, Zipunnikov V, Zöllner H, Edden RAE. Big GABA II: Water-References Edited MR Spectroscopy at 25 Research Sites. *Neuroimage. 2019 May 1;191:537-548. PMC6818968*

22. Guilarte TR, Yeh CL[2], McGlothan JL, Perez J, Finley P, Zhou Y, Wong DF, **Dydak U**, Schneider JS. PET imaging of dopamine release in the frontal cortex of manganese-exposed non-human primates. J Neurochem. 2019 Feb 5. doi: 10.1111/jnc.14681. [Epub ahead of print]

23. Pesch B, Casjens S, Woitalla D, Dharmadhikari S[2], Edmondson DA[2], Zella MAS, Lehnert M, Lotz A, Herrmann L, Muhlack S, Kraus P, Yeh CL[2], Glaubitz B, Schmidt-Wilcke T, Gold R, Van Thriel C, Brüning T, Tönges M, **Dydak U*** (2019). Impairment of Motor Function Correlates with Neurometabolite and Brain Iron Alterations in Parkinson's Disease. *Cells 2019 Jan 29;8(2)*

24. Bari S, Svaldi DO, Jang I, Shenk TE, Poole VN, Lee T, **Dydak U**, Rispoli JV, Nauman EA, Talavage T* (2018). Dependence on Subconcussive Impacts of Brain Metabolism in Collision Sports Athletes: An MR Spectroscopy Study. Brain Imaging Behav. *2019 Jun;13(3):735-749*.

25. Cameron E[2], Dydak JP, Hernandez N, Louis ED, **Dydak U*** (2018). Cerebral Gray Matter Volume Losses in Essential Tremor: A Case- Control Study Using High Resolution Tissue Probability Maps. Parkinsonism Relat Disord. 2018 Jun;51:85-90.

26. Cheng H*, Kellar D, Lake A, Finn P, Rebec GV, Dharmadhikari S[2], **Dydak U**, Newman S (2018). Effects of alcohol cues on MRS glutamate levels in the anterior cingulate. Alcohol Alcohol. 2018 May 1;53(3):209-215.

27. Ma RE[2], Ward EJ[2], Yeh CL[2], Long Z[2], Snyder S, Gokalp Yavuz F, Zauber SE, **Dydak U*** (2018). Thalamic GABA as early marker of manganese-induced toxicity: correlation with exposure levels and neurological functions. *Neurotoxicology. 2018, 64:30-42. Epub 2017 Sep 2. Special Edition on Manganese Neurotoxicity* (impact factor = 3.100)

28. Pesch B*, **Dydak U*#**, Lotz A, Casjens S, Quetscher C, Lehnert M, Abramowski J, Stewig C, Yeh CL[2], Weiss T, Van Thriel C, Herrmann L, Muhlack S, Woitalla D, Glaubitz B, Schmidt-Wilcke T, Brüning T (2018). Association of exposure to manganese and iron with relaxation rates R1 and R2* - magnetic resonance imaging results from the WELDOX II study. *Neurotoxicology. 2018, 64:68-77.* ***# joint 1st author*** (impact factor = 3.100)

29. Casjens* A, **Dydak U**, Dharmadhikari S[2], Lotz A, Lehnert M, Quetscher C, Stewig C, Glaubitz B, Schmidt-Wilcke T, Yeh CL[2], Weiss T, VanThriel C, Hermann L, Muhlack S, Woitalla D, Aschner M, Brüning T, Pesch B (2018). Association of exposure to manganese and iron with striatal and thalamic GABA and other neurometabolites – neuroimaging results from the WELDOX II study. *Neurotoxicology. 2018, 64:60-67.* PubMed PMID: 28803850. (impact factor = 3.100)

30. Bowler RM, Yeh, CL[2], Adams SW, Ward EJ[2], Ma R[2], Dharmadhikari S[2], Snyder SA, Wright CW, **Dydak U*** (2018). Association of MRI T1 Relaxation Time with Neuropsychological Test Performance in Manganese-Exposed Welders. *Neurotoxicology. 2018, 64:19-29*. (impact factor = 3.100)

31. Ward EJ[2], Edmondson DA[2], Nour M[2], Snyder S, Rosenthal FS, **Dydak U***(2017). Evaluation of Human Toenails as a Biomarker of Manganese Exposure in United States Welders. *Annals of Work Exposures and Health 2017;62(1), 101-111*. (impact factor = *1.710)*

32. Louis E*, Hernandez N, Dyke J, Ma RE[2], **Dydak U** (2017). In vivo Dentate Nucleus Gamma-aminobutyric Acid Concentration in Essential Tremor vs. Controls. *Cerebellum. 2017 Oct 16. doi: 10.1007/s12311-017-0891-4. [Epub ahead of print]* (impact factor = 3.234)

33. Dyke JP*, Cameron E[2], Hernandez N, **Dydak U**, Louis ED (2017). Gray matter density loss in essential tremor: a lobule by lobule analysis of the cerebellum. Cerebellum & ataxias. 2017; Jul 3;4:10. doi: 10.1186/s40673-017-0069-3. PMCID: PMC5494891.

34. Mikkelsen M*, Barker PB, Bhattacharyya PK, Brix MK, Buur PF, Cecil KM, Chan KL, Chen DYT, Craven AR, Cuypers K, Dacko M, Duncan NW, **Dydak U**, Edmondson DA[2], Ende G, Ersland L, Gao F, Greenhouse I, Harris AD, He N, Heba S, Hsu TW, Jacobus FA, Jansen JFA, Kangarlu A, Lange T, Lebel RM, Li Y, Lin CYE, Liou JK, Lirng JF, Liu F, Ma R[2], Maes C, Moreno-Ortega M, Murray SO, Noah S, Noeske R, Noseworthy MD, Oeltschner G, Prisciandaro JJ, Puts NAJ, Roberts TPL, Sack M, Sailasuta N, Saleh MG, Schallmo MP, Simard N, Swinnen SP, Tenegthoff M, Truong P, Wang G, Wilkinson ID, Wittsack HJ, Xu H, Yan F, Zhang C, Zipunnikov V, Zöllner HJ, Edden RE (2017). **Big GABA: Edited MR Spectroscopy at 24 Research Sites,** *Neuroimage. 2017 Jul 14. pii: S1053-8119(17)30589-X. doi: 10.1016/j.neuroimage.2017.07.021. [Epub ahead of print] (**impact factor: 5.835**)*

35. Hnilicova P, Pavazan M, Strasser B, Andronesi O, Gajdosik M, **Dydak U**, Ukropec J, Dobrota D, Trattnig S, Bogner W (2016). Spatial variability and reproducibility of GABA-edited MEGA-LASER 3D-MRSI in the brain at 3T. *NMR Biomed 2016; 29(11):1656-1665.* PMC5095789

36. Louis ED, Hernandez N, Dyke JP, Ma R[2], **Dydak U** (2016). Effect of Primidone on Dentate Nucleus γ-Aminobutyric Acid Concentration in Patients With Essential Tremor. *Clin Neuropharmacol. 2016 Jan-Feb;39(1):24-8.*

37. Benito-León J, Louis ED, Mato-Abad V, **Dydak U**, Álvarez-Linera J, Hernández-Tamames JA, Molina-Arjona JA, Malpica N, Matarazzo M, Romero JP, Sánchez-Ferro Á (2016). In vivo neurometabolic profiling in orthostatic tremor. *Medicine 2016; 95(37):e4848*

38. Haag L, Quetscher C, Dharmadhikari S[2], **Dydak U**, Schmidt-Wilcke T, Beste C (2015). On the interrelation of resting state functional connectivity, striatal GABA levels and cognitive control processes. *Human brain mapping. 2015; 36(11):4383-93.*

39. Long Z[2], Dyke JP, Ma R[2], Huang CC, Louis ED, **Dydak U** (2015). Reproducibility and effect of tissue composition on cerebellar γ-aminobutyric acid (GABA) MRS in an elderly population. *NMR Biomed. 2015 Oct;28(10):1315-23.* PMC4594865

40. Poole V.N. [2], Breedlove E.L., Shenk T.E., Abbas K., Robinson M.E., Leverenz L.J., Nauman E.A., **Dydak U.** and Talavage T.M (2015). Sub-concussive Hit Characteristics Predict Deviant Brain Metabolism in Football Athletes. *Developmental neuropsychology. 2015; 40(1):12-7.*

41. Dharmadhikari S[2], Ma R[2], Yeh CL[2], Stock AK, Snyder S, Zauber SE, **Dydak U**, Beste C (2015). Striatal and thalamic GABA level concentrations play differential roles for the modulation of response selection processes by proprioceptive information. *Neuroimage. 2015;120:36-42.* PMC4589476

42. James JR[2], Panda A[2], Lin C, **Dydak U**, Dale BM, Bansal N (2015). In vivo sodium MR imaging of the abdomen at 3T. *Abdominal imaging. 2015; 40(7):2272-80.*

43. Dharmadhikari S[2], Romito LM, Dzemidzic M, **Dydak U**, Xu J, Bodkin CL, Manchanda S, and Byrd KE (2015). GABA and Glutamate Changes in Occlusal Splint-Wearing Males with Possible Bruxism. *Arch Oral Biol. 2015;60(7):1021-1029.* PMCID: PMC4460791 (*impact factor = 1.88)*

44. Quetscher C, Yildiz A, Dharmadhikari S[2], Glaubitz B, Schmidt-Wilcke T, **Dydak U**, Beste C (2015). Striatal GABA-MRS predicts response inhibition performance and its cortical electrophysiological correlates. *Brain Struct Funct. 2015; 220(6):3555-64.* PMC4447607

45. Poole VN[2], Abbas K, Shenk TE, Breedlove EL, Breedlove KM, Robinson ME, Leverenz LJ, Nauman EA, Talavage TM, **Dydak U** (2014). MR Spectroscopic Evidence of Brain Injury in the Non-Diagnosed Collision Sport Athlete. *Dev Neuropsychol. 2014;39(6):459-73.*

46. Louis ED, Huang CC, Dyke JP, Long Z[2], **Dydak U** (2014). Neuroimaging Studies of Essential Tremor: How well do these studies support/refute the neurodegenerative hypothesis? *Tremor Other Hyperkinet Mov. 2014; 4:235.* PMC4038743

47. Yildiz A, Quetscher C, Dharmadhikari S[2], Chmielewski W, Glaubitz B, Schmidt-Wilcke T, Edden R, **Dydak U**, Beste C (2014). Feeling safe in the plane: neural mechanisms underlying superior action control in airplane pilot trainees – a combined EEG/MRS study. *Hum Brain Mapp. 35(10):5040-51.* PMC4452896

48. Long Z[2], Jiang YM, Li XR, Fadel W, Xu J, Yeh CL[2], Long LL, Luo HL, Harezlak J, Murdoch JB, Zheng W, **Dydak U** (2014). Vulnerability of Welders to Manganese Exposure–A Neuroimaging Study, *NeuroToxicology 2014; 45:285-9.* PMC4177505

49. Long Z[2], Li XR, Xu J[3], Edden RA, Qin WP, Long LL, Murdoch JB, Zheng W, Jiang YM, **Dydak U**. Thalamic GABA Predicts Fine Motor Performance in Manganese-Exposed Smelter Workers. *PLoS One 4;9(2). 2014.* PMCID 3913772.

50. Oz G, Alger JR, Barker PB, Bartha R, Bizzi A, Boesch C, Bolan PJ, Brindle KM, Cudalbu C, Dinçer A, **Dydak U**, Emir UE, Frahm J, González RG, Gruber S, Gruetter R, Gupta RK, Heerschap A, Henning A, Hetherington HP, Howe FA, Hüppi PS, Hurd RE, Kantarci K, Klomp DW, Kreis R, Kruiskamp MJ, Leach MO, Lin AP, Luijten PR, Marjańska M, Maudsley AA, Meyerhoff DJ, Mountford CE, Nelson SJ, Pamir MN, Pan JW, Peet AC, Poptani H, Posse S, Pouwels PJ, Ratai EM, Ross BD, Scheenen TW, Schuster C, Smith IC, Soher BJ, Tkáč I, Vigneron DB, Kauppinen RA; MRS Consensus Group. Clinical Proton MR Spectroscopy in Central Nervous System Disorders. *Radiology 270(3): 658-79. 2014.* PMC4263653

51. Xu, J[3], **Dydak U**, Harezlak J, Nixon J[1], Dzemidzic M, Gunn A.D., Karne H.S., Anand A. Neurochemical Abnormalities in Unmedicated Bipolar Depression and Mania: a 2D 1H MRS Investigation. *Psychiatry Res. 2013 Sep 30; 213(3):235-41. 2013.* PMCID 3729606

52. Shin YW, Dzemidzic M, Jo HJ, Long Z[2], Medlock C, **Dydak U**, Goddard AW. Increased resting-state connectivity between the anterior cingulate cortex and the precuneus in panic disorder. *J Affect Disord. 150(3):1091-5. 2013.* PMCID 3759545

53. Long Z[2], Medlock C, Dzemidzic M, Shin YW, Goddard A, **Dydak U**. Decreased GABA levels in Anterior Cingulate Cortext/Medial Prefrontal Cortex in Panic Disorder. *Prog NeuroPsychopharmacol Biol Psychiatry 44:131-5. 2013.* PMCID 3758115

54. Panda A[2], Jones S[2], Raghavan RS[2], Sandrasegaran K, Bansal N**, Dydak U**. Phosphorus Liver MRSI at 3T Using a Novel Dual Tuned 8-Channel 31P/1H Coil. *Magnetic Resonance in Medicine 68:1346-56. 2012.* PMCID 22287206

55. Racette B.A., Aschner M, Guilarte TR, **Dydak U**, Criswell SR, Zheng W. Pathophysiology of Manganese-Associated Neurotoxicity. *Neurotoxicology 33(4):881-6. 2012.*

56. Zheng W, Fu X, **Dydak U**, Cowan DM. Biomarkers of Manganese Intoxication. *Neurotoxicology 32:1-8, 2011.* PMC3030659

57. **Dydak U**, Jiang YM, Long LL, Zhu H, Chen J, Li WM, Edden RA, Hu S, Fu X, Long Z[2], Mo XA, Meier D, Harezlak J, Aschner M, Murdoch JB, Zheng W (2011). In vivo measurement of brain GABA concentrations by magnetic resonance spectroscopy in smelters occupationally exposed to manganese. Environ Health Perspect. 2011 Feb;119(2):219-24. PMC3040609

58. Poryazova R, Schnepf B, Werth E, Khatami R, **Dydak U**, Meier D, Boesiger P, Bassetti CL. Further Evidence for Hypothalamo-Amygdala Dysfunction in Narcolepsy. *Sleep; 32(5):607-13. 2009.* PMID: 19480227**.**

59. Walter M, Henning A, Grimm S, Schulte RF, Beck J, **Dydak U**, Schnepf B, Boeker H, Boesiger P, Northoff G. The Relationship between aberrant Neuronal Activation Patterns in the Pregenual Anterior Cingulate, Altered Glutamatergic Metabolism and Anhedonia in Major Depression. *Arch Gen Psychiatry;66(5):478-86. 2009* PMID: 19414707

60. Henning A, Schär M, Kollias S, Boesiger P, **Dydak U**. Quantitative magnetic resonance spectroscopy in the entire human cervical spinal cord and beyond at 3T. *Magn Reson Med; 59(6):1250-8. 2008.* PMID: 18421679

61. Northoff G, Walter M, Schulte RF, Beck J, **Dydak U**, Henning A, Boeker H, Grimm S, Boesiger P. GABA concentration in the human anterior cingulate cortex pred*icts negative BOLD response in fMRI***. *Nature Neuroscience;****10(12):1515-7, 2007. Epub 2007 Nov 4.*** PMID: 17982452

62. Schoonman GG, Sándor PS, Nirkko AC, Lange T, Jaermann T, **Dydak U**, Kremer C, Ferrari MD, Boesiger P, Baumgartner RW. Hypoxia-induced acute mountain sickness is associated with intracellular cerebral

edema: a 3T magnetic resonance imaging study. *J Cereb Blood Flow Metab. 28(1):198-206, 2008. Epub 2007 May 23.* PMID: 17519973

63. **Dydak U**, Schär M. MR Spectroscopy and Spectroscopic Imaging: Comparing 3.0T versus 1.5T. Review Article. *Neuroimaging Clin N Am 16(2):269–283, 2006.* PMID: 16731366
64. **Dydak U**, Mueller S, Sandor PS, Meier D, Boesiger P, Jung HH. Cerebral Metabolic Alterations in McLeod Syndrome. *Eur Neurol 56(1):17-23, 2006.* PMID: 16914926
65. **Dydak U**, Meier D, Lamerichs R, Boesiger P. Trading Spectral Separation at 3T for Acquisition Speed in Multi Spin-Echo Spectroscopic Imaging. *AJNR Am J Neuroradiol. 27(7):1441-6, 2006.* PMID: 16908554
66. Lange T, **Dydak U**, Roberts TP, Rowley HA, Bjeljac M, Boesiger P. Pitfalls in Lactate Measurements at 3T. *AJNR Am J Neuroradiol. 27(4):895-901, 2006.* PMID: 16611787
67. Lange T, Trabesinger AH, Schulte RF, **Dydak U**, Boesiger P. Prostate spectroscopy at 3 Tesla using two-dimensional S-PRESS. *Magn Reson Med. 56(6):1220-8, 2006.* PMID: 17094089
68. Sánchez-Gonzales J, Tsao J, **Dydak U**, Desco M, Boesiger P, Pruessmann KP. Minimum-Norm Reconstruction for Sensitivity-Encoded MR Spectroscopic Imaging. *Magn Reson Med. 55(2):287-95, 2006.* PMID: 16408281
69. Trabesinger AH, Meier D, **Dydak U**, Lamerichs R, Boesiger P. Optimizing PRESS Localized Citrate Detection at 3 Tesla. *Magn Reson Med. 54(1):51-58, 2005.* PMID: 15968673
70. Sándor PS, **Dydak U**, Schoenen J, Kollias SS, Hess K, Boesiger P, Agosti M. MR-Spectroscopic Imaging during visual stimulation in subgroups of migraine with aura, *Cephalalgia 25(7):507-518, 2005.* PMID: 15955037
71. **Dydak U**, Pruessmann KP, Weiger M, Tsao J, Meier D, Boesiger P. Parallel Spectroscopic Imaging with Spin-Echo Trains, *Magn Reson Med. 50(1): 196-200, 2003.* PMID: 12815695
72. **Dydak U**, Weiger M, Pruessmann KP, Meier D, Boesiger P. Sensitivity-Encoded Spectroscopic Imaging, *Magn Reson Med. 46(4): 713-722, 2001.* PMID: 11590648
73. Do KQ, Trabesinger AH, Kirsten-Krüger M, Lauer CJ, **Dydak U**, Hell D, Holsboer F, Boesiger P, Cuénod M; Schizophrenia: Glutathione Deficit in Cerebrospinal Fluid and Prefrontal Cortex in Vivo. *Eur J Neurosci 12(10), 3721-3728, 2000.* PMID: 11029642
74. Ambuehl PM, Meier D, Wolf B, **Dydak U**, Boesiger P, Binswanger U; Metabolic Aspects of Phosphate Replacement Therapy for Hypophosphatemia After Renal Transplantation: Impact on Muscular Phosphate Content, Mineral Metabolism, and Acid/Base Homeostasis. *Am J Kidney Dis 34(5), 875-883, 1999.* PMID: 10561144

***Book Chapters:***

1. **Dydak U**, Edmondson D[2], Zauber S.E. (2016). Magnetic Resonance Spectroscopy of Degenerative Brain Diseases. Oz G, editor. Springer Publishing Company. Chapter 5, MRS of Parkinsonian Disorders.
2. Schar M, Strasser B, **Dydak U**. (2016). Handbook of Magnetic Resonance Spectroscopy (MRS). Bottomley P.A., Griffith J.R., editors. John Wiley & Sons Ltd. Chapter 8, Chemical Shift Imaging with Phase- and Sensitivity-Encoding
3. **Dydak U**, Criswell S. (2015). Manganese in Health and Disease. Costa L, Aschner M, editors. United Kingdom: RSC Publishing. Chapter 19, Imaging Modalities for Manganese Toxicity; p.513-523.

***Patents***

Van den Brink JS, Weiger M, **Dydak U**, Folkers PJM, Lamerichs RMJN, Pruessmann KP, VanMuiswinkel AMC. Magnetic Resonance Imaging Method with Sub-Sampling. International Publication number: WO 00/72034 A1, 30.11.2000.

***Invited Talks***

*(selected from 73 invited talks; italic: invited talks at major international conferences)*

2022 *International Conference of Trace Elements and Minerals (ICTEM), "Quantifying brain manganese levels by MRI: What is considered harmful?", Aachen, Germany, June 8, 2022*

2022 Seminar on MRS, "Toxic Exposures: Effects on Mood, Cognition and GABA Levels - The Case of Welding Fumes", UCLA Brain Research Institute, March 16, 2022

2022 Indiana CTSI Access Technology Program Seminar, "From neurotransmitters to cartilage: Imaging capabilities at the Purdue MRI Facility", virtual, Mar 11, 2022

2022 Indiana CTSI MTAP Winter Retreat, Panelist: "Imaging techniques supporting preclinical studies", Purdue University, Feb 22, 2022

2021 MRS Editingschool, "Edited MRS: Practicalities of Acquisition" (lecture), Playa Del Carmen, Mexico, Nov 15-18, 2021

2021 Seminar for Neurotrauma and Diseases, "Neuroimaging of Toxicity in Humans: Neurotransmitters and Metals", Purdue University, Oct 6, 2021

*2021 ISMRM Weekend Educational Course, Basic MR Spectroscopy, "Basic Principles of MRS", ISMRM, virtual, May 16, 2021*

2020 International Workshop on Diagnostic Criteria for Manganism, Panelist and Speaker, "Considerations on Toenails and MRI", Nov 12, 2020

2020 MRS Editingschool, "Edited MRS: Practicalities of Acquisition" (lecture), Virtual, Dec 7-11, 2020 *(Best Teacher and Best Presentation Award)*

2019 International Manganese Institute, Annual Meeting, "Toenails, a valid biomarker for Manganese?", Vienna, Austria, June 12, 2019

*2019 ISMRM Member-Initiated Symposium, MRI/S Biomarkers of toxicity, "Neuroimaging Markers of Metal Toxicity in Career Welders", Montreal, Canada, May 16, 2019*

2019 Seminar, University of Oregon, "Neuroimaging of Manganese Toxicity in Welders", Eugene, OR, Mar 15, 2019

2018 MRS Editingschool, "Edited MRS: Practicalities of Acquisition" (lecture), Playa Del Carmen, Mexico, Dec 2-6, 2018

2018 Purdue Association for Magnetic Resonance (PAMR), "Neuroimaging of Manganese Toxicity" (lecture), Purdue University, West Lafayette, IN, Nov 14, 2018

2018 HDFS Colloquium, Purdue University, "MRI of the Human Brain across the Lifespan", West Lafayette, IN, Oct 19, 2018

2018 Toxicology and Risk Assessment Conference (TRAC), "Neuroradiology meets Metal Toxicology", Cincinnati, OH, April 23-26, 2018

*2017 ISMRM Weekend Educational Course, Introduction into Magnetic Resonance Spectroscopy, "MRSI: Basic Sequences and Acceleration", ISMRM, Honolulu, USA, April 22th, 2017*

*2017 Society of Toxicology 56th Annual Meeting, Continuing Education Course: New Concepts and Technologies in Metals Toxicology. "Medical Imaging Technologies in Metal Toxicological Diagnosis and Research", Baltimore, MD, March 12, 2017*

2016 4th Indiana Neuroimaging Symposium, "GABA Mapping in the Human Brain: Methods and Applications", Indiana University, Bloomington, IN, Nov 18 2016

*2016 28th International Neurotoxicology Conference – Manganese2016, "Exposure to Manganese in Career Welders: A Longitudinal Neuroimaging Study", New York, NY, Sept 28, 2016*

*2015 Symposium on Manganese and the Brain, 15th Biennial Meeting of the International Neurotoxicology Association, "Brain GABA concentrations and their relation to exposure, movement and cognition in manganese exposure", July 1, 2015, Montreal, Canada*

2015 Ph.D. Seminar, MR Center of Excellence, Medical University Vienna, "How toxic are Welding Fumes? A Neuroimaging Study", Vienna, Austria, Mar 11, 2015

2014 Konopinski Colloquium, "Magnetic Resonance Spectroscopy: About Spins, Magnets and Brains". Physics Department, Indiana University, Bloomington, Indiana, Oct 22, 2014

2014 Purdue Student Pugwash Conference, "Medical Imaging of the Body's Chemistry: Impacts on Occupational Health and Cancer Research", West Lafayette, Indiana, Apr 5, 2014

2014 Physics General Colloquium, Purdue University, "Magnetic Resonance Spectroscopy: About Spins, Magnets, and Brains". Purdue University, West Lafayette, IN, USA, Feb 13, 2014

2013 The 3rd Indiana Neuroimaging Symposium, "Neuroimaging for Early Diagnosis of Occupational Manganese Toxicity", Bloomington, Indiana, Oct 25, 2013

2012 The Indianapolis Chapter of the Society of Neuroscience, Annual Meeting, *"In Vivo Assessment of GABA Brain Levels in Parkinson-like Motor Disorders by MRS"*, Indianapolis, IN, USA, Sept 28, 2012

*2012 CINP, Symposium on Panic Disorder, "GABA Imaging Findings in Panic Disorder measured by 1H MRS", Stockholm, Sweden, June 3, 2012*

2012 International Symposium on Exposure to Manganese and Neurotoxicity in Welders, "Neuroimaging – quantification of Mn, Fe and metabolites (by MRS) in the brain", Bochum, Germany, May 9, 2012

2011 Purdue University Center for Cancer Research (PUCCR) Scientific Retreat, "In Vivo 31P Magnetic Resonance Spectroscopy: Monitoring the Liver's Response to Radiation Treatment", West Lafayette, IN, USA, Sept 8, 2011

*2011 Xi'an International Neurotoxicology Conference, "In vivo Assessment of GABA and Glutamate levels by Magnetic Resonance Spectroscopy in Manganese Exposure", Xi'an, China, June 9, 2011*

2011 Chronic Disease Research Interest Group Seminar Series, Purdue, "Neuroimaging of Manganese-Induced Parkinsonism", West Lafayette, IN, USA, Apr 18, 2011

2011 2010 CANMRDC 2010 Meeting, University of Illinois, “In Vivo Measurement of Neurotransmitters by MRS”, Urbana-Champaign, IL, USA, Nov 6, 2010.

2010 Seminar, Department of Radiology & Radiological Science, Johns Hopkins University School of Medicine, “MR Spectroscopy of GABA and 3D MRI in Smelters Exposed to Manganese”, Baltimore, MD, USA, April 2, 2010

2010 2010 Research Seminar, MRI group, Medical University of Vienna, Austria, “Liver 31P MRSI Using an 8-Channel Dual-Tuned 31P/1H Coil at 3T”, Vienna, Austria, Jan 18, 2010

2009 Manganese Health Research Program Showcase Conference, “Spectroscopy of GABA and 3D MRI in Smelters exposed to Manganese”, Lansdowne, VI, USA, June 24-25 2009

*2009 ISMRM Weekend Educational Courses, Imaging Strategies, “Spectroscopic Imaging: Implementation and Acceleration”, ISMRM, Honolulu, USA, April 19th, 2009*

*2008 ISMRM, Educational Course, Toronto, Canada, “Spectroscopic Imaging: Implementation and Acceleration”, May 4, 2008*

2008 Center for Magnetic Resonance Research, University of Minnesota, MN, USA, “SENSE and long Echo Trains: Fast, Parallel, and dynamic MRSI”, February 14, 2008

2007 ISMRM High Field Workshop, Asilomar, CA, USA, “Clinical Impact of Parallel Imaging at 3T”

2006 Grand Rounds and lecture series, Radiology Department, University of Wisconsin, Madison, WI, USA: “Basics of MR Spectroscopy”, “MRS at 3T: New Possibilities and Challenges”, “SENSE and Long Echo Times: Fast, Parallel and Dynamic MRSI”

*2006 14th Meeting of the ISMRM, Seattle, WA, USA, Lunchtime Symposium Philips Medical Systems*

*2005 13th Meeting of the ISMRM, Miami, FL, USA. Course on MR physics and Techniques for clinicians: "MR Spectroscopy"*

*2005 46th Experimental Nuclear Magnetic Resonance Conference, Providence, RI, USA,*

*"Sensitivity Encoded Spectroscopic Imaging"*

2005 Seminar at Vanderbilt University Institute of Imaging Science (VUIIS), Nashville, TN, USA, “MR Spectroscopic Imaging: Faster and Functional at 3T

*2004 National Italian Congress of Neuroradiology (AINR), Milan, Italy. "Motivation for 3T: methodological aspects"*

2004 Grand Rounds, Department of Neurology, University of Wisconsin, Madison, WI, USA. "fMRI and MRS in Migraine"

2004 Grand Rounds, Department of Radiology, University of Wisconsin, "Frontiers in MR Spectroscopic Imaging: Fast, parallel and dynamic", Madison, WI, USA

2004 Neurosciences Rounds, University of Toronto. "Magnetic Resonance Spectroscopic Imaging: Faster and Functional", Toronto, Canada

*2004 42nd Annual Meeting of the American Society of Neuroradiology, Advanced Imaging Seminar: ‘Advanced MRSI Techniques’, Seattle, USA*

2004 Radiology Seminar, ‘MRI and MRS at 3T: advantages and pitfalls’, University Hospital Lund,

*2003* *41st Annual Meeting of the American Society of Neuroradiology, 'MRSI: Faster and Functional', Washington DC, USA*

2002 Panorama MediClinic, 'Clinical Applications of MR Spectroscopy', Cape town, South Africa,

2001 MR Colloquium, 'SENSE: Basics and Applications', Amsterdam Medical Center, The Netherlands

2000 MR Colloquium, 'SENSE: Sensitivity Encoding for faster MRI and MRSI', VA Medical Center San Francisco, CA, USA

***Conference Abstracts and Presentations (past five years):***
(from 255 conference abstracts total since 1999)

**2021**

1. Durham PF, Monsivais H, Nossa G, **Dydak U**. Reproducibility of Measuring Glutamate with MRS. Women's Health Symposium, WGHI, Purdue University, Dec 8, 2021
2. Nossa G, Deligiannidis K, Dydak U. Application of Edited Spectroscopy in Postpartum Depression. Women's Health Symposium, WGHI, Purdue University, Dec 8, 2021
3. Monsivais H, Shen X, Emir U, **Dydak U**. Iron Imaging by MRI and its Applications in Women's Health. Women's Health Symposium, WGHI, Purdue University, Dec 8, 2021
4. Šušnjar A, Rispoli J, **Dydak U**. Magnetic Resonance Spectroscopy: Technical Innovations and Clinical Applications in Women's Health. Women's Health Symposium, WGHI, Purdue University, Dec 8, 2021
5. Zhou X, Yoder KK, **Dydak U**. Comparison Of Quantification Software Tools For Reproducibility Of GABA+ In The Human Brain By MR Spectroscopy At 3 Tesla. *RSNA Annual Meeting, Chicago, USA, Nov 28-Dec 2, 2021.*
6. **Dydak U**, Nichols M, Cameron E, Dyke JP, Louis ED. GABA-changes over 3 years in an aging population: a longitudinal study. *6th International Symposium on Advanced MRS and GABA, Playa del Carmen, Mexico, Nov 18-21, 2021.*
7. Monsivais H, Durham PF, Servati M, **Dydak U**. MEGA-sLASER vs MEGA-PRESS: Post-Processing Practicalities. *6th International Symposium on Advanced MRS and GABA, Playa del Carmen, Mexico, Nov 18-21, 2021.*
8. Nossa G, Monsivais H, Durham PF, **Dydak U**. HERMES, MEGA-PRESS and MEGA-sLASER: Performance in Applied Studies. *6th International Symposium on Advanced MRS and GABA, Playa del Carmen, Mexico, Nov 18-21, 2021.*
9. Šušnjar A, Nossa G, Monsivais H, **Dydak U**. Influence of Gradient Polarity in Edited MRS. *6th International Symposium on Advanced MRS and GABA, Playa del Carmen, Mexico, Nov 18-21, 2021.*
10. Bobo T, Prasad KA, Theis M A, Snyder S, Lee JH, Lee CG, Liu S, **Dydak U**, Park J.H. Assessment of workplace exposure to metallic nanoparticles produced during metal inert gas welding using nanoparticle respiratory *deposition sampler. American Industrial Hygiene Conference and Exposition (AIHce), May 24-26, 2021.* (Best in Show Awards 3rd Place)
11. Monsivais H, Francis G, Snyder S, Kuhn J, **Dydak U**. Sensitivity and Specificity of MRI Markers of Excess Manganese Brain Deposition. *ISMRM Annual Meeting – An Online Experience, May 15-20, 2021*

12. Durham PF¸ Monsivais H¸ Harold R.B., Zhou X., Foti D.J., **Dydak U**. Measuring in vivo Glutamate Concentrations: A Comparison of Different MRS Approaches. Purdue Undergraduate Research Conference, April 12-19, 2021

13. Francis G, Monsivais H, Lee CG, Park JH, **Dydak U**. Relationship between MRI Markers of Brain Metal Levels and Exposure to Welding Fumes. Purdue Undergraduate Research Conference, April 12-19, 2021

14. Ahmed K.M., Monsivais H, Harold RB, Foti D, **Dydak U**. Impact of Manganese Exposure on Mood in Welders: A Longitudinal Study. *Society of Toxicology 60th Annual Meeting, virtual (Covid-19), March 12-26, 2021; 3074/P205.*

15. Stucky L, Monsivais H, Snyder S, **Dydak U**. Three-Year Follow-Up on Neuropsychological Assessment of Welders. *Society of Toxicology 60th Annual Meeting, virtual (Covid-19), March 12-26, 2021; ; 3085/P216.*

16. Monsivais H, Francis G, Nsyder S, Kuhn J, **Dydak U**. Sensitivity and Specificity of MRI Markers of Manganese Brain Deposition. *Society of Toxicology 60th Annual Meeting, virtual (Covid-19), March 12-26, 2021; 3076/P207.*

**2020**

17. Zhou X, Foti D, Kelleher B, **Dydak U**. Quantification of GABA+ in the Human Brain by MR Spectroscopy at 3 Tesla: LCModel Comparison of MEGA-sLASER and HERMES. RSNA 2020, virtual, Nov 29-Dec 5, 2020.

18. Lotz A, Pesch B, Casjens S, Lehnert M, Zschiesche W, Taeger D, Glaubitz B, Yeh CL[2], Weiss T, Schmidt-Wilcke T, Quetscher C, Gabriel S, Samis Zella MA, Woitalla D, Kraus PH, **Dydak U**, van Thriel C, Brüning T, Behrens T. Are fine-motor skills in welders impaired due to manganese exposure? Results from the WELDOX II study. DGEPI, (virtual) Greifswald, Germany, Sept 29, 2020.

19. Xia P, Zhou X, Chiew M, Thomas M, Dydak U, Emir U. Density-Weighted Concentric Ring Trajectory Using Simultaneous Multi-Slice Acceleration: 3D Magnetic Resonance Imaging at 3T. 2020 Joint AAPM COMP Meeting, July 12-16, 2020 – Oral talk, ***Best in Physics (Imaging) Award***

20. Almomen F, Xia P, Zhou X, Chiew M,Steel A, Thomas A, Dydak U, Emir U. Simultaneous Mapping of T2* and Major Neurotransmitters Using MRSI at 3T. OHBM Annual Meeting (Virtual), June 23-July 3, 2020.

21. Alhulail A[2], Shen X, Nichols M, Volety S, Nagel AM, **Dydak U,** Emir UE. Fast In Vivo 23Na Imaging and T2* Mapping Using Non-Localized 2D FID Magnetic Resonance Spectroscopic Imaging at 3 T. *ISMRM Virtual Conference and Meeting, August 8-14, 2020.*

22. Alhulail A[2], Servati M, Ooms N, Akin O, Dincer A, Thomas MA, **Dydak U**, Emir U. Reliability of Water-Lipid Separation in the Kidney Measured by Accelerate In Vivo Magnetic Resonance Spectroscopic Imaging at 3 T. *ISMRM Virtual Conference and Meeting, August 8-14, 2020.*

23. Zou Y, Zhu W, Yang H-C, Vike NL, Svaldi DO, Shenk TE, Poole VN, Tamer GG, Leverenz LJ, **Dydak U**, Nauman EA, Talavage TM, Rispoli JV. Development of an unbiased population-specific brain atlas for adolescent collision-sport athletes. *ISMRM Virtual Conference and Meeting, August 8-14, 2020*

24. Ahmed KM, Servati M, Monsivais H, Dydak U. Impact of Manganese Exposure on Mood in Welders, *Society of Toxicology 59th Annual Meeting, virtual (Covid-19), March 15-19, 2020*

25. Lotz A, Pesch B, Casjens S, Lehnert M Zschiesche W, Taeger D, Glaubitz B, Yeh CL, Weiss T, Schmidt-Wilcke T, Quetscher C, Gabriel S, Samis Zella MA, Woitalla D, Kraus PH, Dydak U, van Thriel C, Behrens T, Brüning T. Analyse des Zusammenhangs zwischen Manganexposition und Feinmotorik bei Schweißern – Ergebnisse der WILDOX II Studie. 60th Annual Scientific Meeting of the DGAUM, Munich, Germany, March 11-14, 2020. (https://www.dgaum.de/dgaum-jahrestagung/)

**2019**

26. Aly Z[1], Cromer M[1], Jeffries A[1], Cameron E[2], **Dydak U.** Analysis of Manganese Accumulation in the Pituitary Gland, Olfactory Bulb, and Hippocampus of Smelter Workers Using High Resolution 3D T1-Weighted MRI. 15th IUTOX International Congress of Toxicology (ICTXV), Honolulu, Hawaii, USA, July 15-18, 2019.

27. Alhulail A[2], Xia P, Zhou X, Thomas MA, **Dydak U**, Emir UE. Musculoskeletal Lipid Compartments Separation and Quantification by High-Resolution Metabolite Cycling Magnetic Resonance Spectroscopic Imaging at 3 T. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019. (Oral presentation)*

28. Edmondson DA[2], Xia P[2], Keehn B, **Dydak U**. An MRS investigation of superior visual search abilities in children with autism spectrum disorder: Evidence for enhanced top-down attentional filtering. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019. (Oral presentation)*

29. Edmondson DA[2], Helie S, **Dydak U**. Whole-Brain R1 mapping predicts occupational Mn air exposure: a support vector machine approach. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019.*

30. Xia P, Shen X, Zhou X, Chiew M, Thomas MA, **Dydak U**, Emir UE. Density-Weighted Concentric Ring Trajectory using simultaneous multi-slice (SMS) acceleration: 3D Metabolite-cycled Magnetic Resonance Spectroscopy Imaging at 3 T. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019. (Oral presentation)*

31. Emir UE, Xia P, **Dydak U**, Zhou X, Thomas MA, Chiew M, Guo R, Li Y, Zhao Y, Liang ZP. Non-Water suppressed High-Resolution 1H-MRSI of the Brain Using Short-TE SPICE with semi-LASER Concentric Ring Trajectory Acquisition. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019.*

32. Shen X, Xia P, Moghadam MD, Near J, Zhou X, Chiew M, **Dydak U**, Emir UE. Simultaneous Measurement of functional MRI and MRS by Fast Non-water Suppressed Keyhole MR Spectroscopy Imaging. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019. (Oral presentation)*

33. Mikkelsen M, Bhattacharyya PK, Mandal P, Shukla D, Wang AM, Wilson M, **Dydak U**, Murdoch JB, Near J, Oeltzschner G, and Edden RAE. Analyzing Big GABA: Comparison of Five Software Packages for GABA-Edited MRS. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019.*

34. Povazan M, …, **Dydak U**, Edmondson DA[2], … ,Ma R[2], … ,Edden RAE. The use of multi-vendor, multi-site $^{1}$H-MRS data acquired at 26 sites as a benchmark for MRS standardization: Comparison of quantification software. Submitted to ISMRM *27th Scientific Meeting & Exhibition, Montréal, Canada, May 11-16, 2019.*

35. Edmondson DA[2], Hélie S, **Dydak U**. Whole-brain R1 Mapping Predicts Mn Accumulation In The Human Brain: A Support Vector Machine Approach. *Society of Toxicology 58th Annual Meeting, Baltimore, MD, March 11-14, 2019*

36. Davis JL[1], Edmondson DA[2], **Dydak U**. Whole-Brain Approaches for Investigating Iron Accumulation R2* show no Excess from Occupational Exposure to Welding Fumes. *Society of Toxicology 58th Annual Meeting, Baltimore, MD, March 11-14, 2019*

**2018**

37. Alhulail A[2], Xia P, Zhou X, Thomas MA, **Dydak U**, Emir UE. Musculoskeletal Fat Quantification by Using High-Resolution Metabolite Cycling Magnetic Resonance Spectroscopic Imaging at 3 T, MRS Workshop, Utrecht, The Netherlands, Oct 2018.

38. Emir UE, Xia P, Zhou X, Chiew M, Thomas MA, **Dydak U**. "Density-Weighted Concentric Ring Trajectory using simultaneous multi-slice (SMS) acceleration: 3D Metabolite-cycled Magnetic Resonance Spectroscopy Imaging at 3 T", MRS Workshop, Oct 2018, Utrecht, The Netherlands

39. Xia P, Keehn BM, Zhou X, **Dydak U**, Emir UE. Feasibility of High Resolution Magnetic Resonance Spectroscopic Imaging in Children with Autism Spectrum Disorder. Purdue Autism Research Conference, West Lafayette, IN, Oct 18, 2018.

40. Edmondson DA[2], Xia P[2], Keehn BM, **Dydak U**. Neurochemistry and the Visual Seach Advantage in Autism Spectrum Disorder. *Oral presentation*. Purdue Autism Research Conference, West Lafayette, IN, Oct 18, 2018.

41. Ukropcova B, Schon M, Slobodova L, Tirpakova V, Krumpolec P, Nemec M, Sutovsky S, Kosutzka Z, Straka I, Turcani P, Bogner W, **Dydak U**, Valkovic P, Sedliak M, Ukropec J. The impact of supervised aerobic-strnegth training on metabolism, cognitive functions and physics fitness in seniors with/without impaired glucose metabolism. 54th Annual Meeting of the European Association for the Study of Diabetes. Oct 1-5, 2018, Berlin, Germany

42. Bartolomeo L, Wright A[2], Ma R[2], Hummer T, Francis M, Visco A, Mehdiyoun N, Bolbecker AR, Moravec L, Hetrick WP, **Dydak U**, O'Donnell BF, Breier A. Relationship of Brain Metabolites to Neurocognition in Early Stage Psychosis. Oral presentation at the 32nd Annual Meeting of the Society for Research in Psychopathology, Indianapolis, IN, USA, September 20-23, 2018.

43. Edmondson DA [2], Yeh CL[2], Davis J[1], Helie S, **Dydak U**. Using MRI and unsupervised learning methods to characterize whole-brain Mn accumulation in welders. Toxicology and Risk Assessment Conference (TRAC), Cincinnati, OH, April 23-26, 2018.

44. Cameron EM[2], Dyke JP, Louis ED, **Dydak U**. On the Importance of Using High-Resolution Atlases for Voxel-Based Morphometry of High-Resolution MRI Data: A Case-Control Study on Essential Tremor. ISMRM *26th Scientific Meeting & Exhibition, Paris, France, June 16-21,2018. Proc. Intl. Mag. Reson. Med. 26:3727*.

45. Yeh CL[2], **Dydak U**. Towards Quantification of Manganese Deposition in the Human Brain in the Presence of Iron: A Calibration Study. ISMRM *26th Scientific Meeting & Exhibition, Paris, France, June 16-21,2018. Proc. Intl. Mag. Reson. Med. 26:5012*.

46. Edmondson DA[2], Xia P[2], Patterson DA, Keehn B, **Dydak U**. Cortical GABA levels correlate with visual search performance in children with autism spectrum disorder. ISMRM *26th Scientific Meeting & Exhibition, Paris, France, June 16-21,2018. Proc. Intl. Mag. Reson. Med. 26:0457*.

47. Emir UE, Xia P[2], Xiaopeng Z, Chiew M, Steel A, Thomas MA, **Dydak U**. Non-water suppressed GABA Edited Magnetic Resonance Spectroscopic Imaging using Densitity Weighted Concentric Rings k-space Trajectory. ISMRM *26th Scientific Meeting & Exhibition, Paris, France, June 16-21,2018. Proc. Intl. Mag. Reson. Med. 26:3966*.

48. Považan M, Mikkelsen M, Berrington A, Barker PB, ….., **Dydak U**, Edmondson DA[2],….., Ma RE[2], …., and Edden RAE. Multi-vendor, multi-site comparison of $^{1}$H-MRS PRESS data acquired at 25 research sites. ***Oral presentation,*** ISMRM *26th Scientific Meeting & Exhibition, Paris, France, June 16-21,2018. Proc. Intl. Mag. Reson. Med. 26:0160*.

49. Edmondson DA [2], Yeh CL[2], Davis J[1], Helie S, **Dydak U**. Using MRI and unsupervised learning methods to characterize whole-brain Mn accumulation in welders. Toxicology and Risk Assessment Conference (TRAC), Cincinnati, OH, April 23-26, 2018

50. Edmondson DA[2], Sabbaghi A, **Dydak U**. MRI markers show evidence of a threshold effect for manganese exposure in welders. *Society of Toxicology 57th Annual Meeting, San Antonio, TX, March 11-15, 2018. Toxicol Sci suppl. 156:1396.*

51. Lotz A, Pesch B, Casjens S, Lehnert M, Glaubitz B, Quetscher C, Yeh CL[2], Gabrie S, Weiss T, Schmidt-Wilcke T, **Dydak U**, Van Thriel C, Brüning T. Ist die Handgelenks-Finger-Geschwindigkeit bei Schweißern aufgrund einer Manganexposition verändert? Ergebnisse der WELDOX II Studie. 58th Annual Meeting of the German Society for Occupational and Environmental Medicine (DGAUM), Munich, Germany, March 7-9, 2018

**2017**

52. Cameron E[2], **Dydak U**, Lin C. Quality Assurance of Diffusion Weighted Imaging: Comparison of a New ACR Phantom Based Method with the QIBA Method**.** Accepted for oral presentation at 103rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, November 26 - December 1, Chicago, Illinois (***Oral presentation, RSNA student travel award***)

*53.* Bartolomeo L, Wright AM[1], Ma R[2], Hummer TA, Francis MM, Visco AC, Mehdiyoun N, Bolbecker AR, Hetrick WP, **Dydak U**, O'Donnell BF, Breier A. Relationship of auditory event related potentials with magnetic resonance spectroscopy in early stage psychosis. Accepted for presentation at Neuroscience 2017, Nov 11-15, 2017, Washington D.C.

54. Cameron E[2], Dyke JP, Louis ED, **Dydak U**. Cortical Gray Matter Volume Changes in Essential Tremor Subgroups. Oral presentation at the 59th annual meeting of the American Association of Physics in Medicine (AAPM), Denver, Colorado, July 30 – Aug 3, 2017. (***Oral presentation, travel award*** *by Purdue Institute for Integrative Neuroscience*)

55. Louis E, Dyke J, Cameron E[2], Hernandez N, **Dydak U**. Gray Matter Density in Essential Tremor: A Lobule by Lobule Analysis of the Cerebellum. *21st International Congress of Parkinson's Disease and Movement Disorders, Vancouver, Canada, June 4-8, 2017*

56. Ukropec J, Slobodova L, Tirpakova V, Vajda M, Krumpolec P, Heckova E, Ma R[2], Klepochova R, Strka I, Vallova S, Sitovsky S, Kosutzka Z, Tsai CL, Pai MC, Turcani P, **Dydak U**, Bogner W, Krssak M, Valkovic P, Sedliak M, Ukropcova B. Effects of Exercise Training on Motor Functions, Cognition & Glucose Metabolism in Patients with Parkinson's disease. *Cell Symposia – Exercise Metabolism, Gothenburg, Sweden, May 21-23, 2017*

57. Wright AM[1,2], Ma R[2], Hummer T, Francis M, Visco A, Mehdiyoun N, **Dydak U**, Breier A. Longitudinal MRS Study following Treatment of Early-Phase Psychosis with N-Acetylcysteine. *ISMRM 25th Scientific*

*Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:2976*. ***(ISMRM Educational Stipend)***

58. Yeh CL[2], Johnson CB, Ma R[2], Dharmadhikari S[2], Snyder S, **Dydak U**. Whole-Brain Visualization of Manganese Deposition in Welders. *ISMRM 25th Scientific Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:3047*. ***(Magna Cum Laude Award (top 15%), 3rd Place winner in Molecular Imaging Study Section, ISMRM Educational Stipend)***

59. Edmondson DA[2], Ma R[2], Yeh CL[2], Zauber SE, Snyder S, Ward E[2], **Dydak U**. Occupational Manganese Exposure: Reversibility of Increased GABA Levels and Brain Mn Accumulation. *ISMRM 25th Scientific Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:562*. ***(Magna Cum Laude Award (top 15%), oral power pitch presentation, ISMRM Educational Stipend)***

60. Ma R[2], Andronesi O, Bogner W, **Dydak U**. Brain-Structure-Specific Metabolite Quantification of MEGA-LASER 3D MRSI Data. *ISMRM 25th Scientific Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:1254****. (Magna Cum Laude Award (top 15%), oral presentation)***

61. Ma R[2], Snyder S, Stock AK, Andronesi O, Bogner W, **Dydak U**. Using 3D MEGA-LASER MRSI to Study the Role of Basal Ganglia GABA and Glx in Response Selection in Manganese Neurotoxicology. *ISMRM 25th Scientific Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:5524*. ***(2nd Place winner in Psychiatric MRI and MRS study section)***

62. Mikkelsen M, Brix MK, Buur PF, Cecil KM, Chan KL, Chen DYT, Craven AR, Cuypers K, Duncan NW, **Dydak U**, Edmondson DA[2], Ende G, Ersland L, Greenhouse I, Harris AD, Heba S, Hsu TW, Jansen JFA, Lebel RM, Lin CYE, Liou JK, Lirng JF, Ma R[2], Maes C, Murray SO, Noah S, Noeske R, Noseworthy MD, Oeltschner G, Prisciandaro JJ, Puts NAJ, Roberts TPL, Sack M, Sailasuta N, Saleh MG, Schallmo MP, Simard N, Swinnen SP, Tenegthoff M, Truong P, Wittsack HJ, Zipunnikov V, Zöllner HJ, Edden RE. **Integrative analysis of GABA-edited MRS data acquired at 19 research sites**. *ISMRM 25th Scientific Meeting & Exhibition, Honolulu, HI, April 22-27,2017. Proc. Intl. Mag. Reson. Med. 25:2990*.

63. Guilarte TR, McGlothan JL, Perez J, Zhou Y, Yeh CL[2], Wong DF, **Dydak U**, JS Schneider. In Vivo Dopamine Release PET and T1-Weighted MRI Relaxation Time in the Frontal Cortex of Mn-Expsosed NonHuman Primates: Are the Effects Reversible? . *Society of Toxicology 56th Annual Meeting, Baltimore, MD, March 12-16, 2017. Toxicol Sci suppl. 156, 1:1397*

64. Edmondson DA[2], Synder S, Zauber SE, Halcomb ME, Yoder KK, **Dydak U**. Effects of chronic occupational manganese exposure on amphetamine-induced striatal dopamine release: a pilot study. *Society of Toxicology 56th Annual Meeting, Baltimore, MD, March 12-16, 2017. Toxicol Sci suppl. 156:1396*

65. Bowler R, Adams S, **Dydak U**. Neuropsychological Test Performance in Relation to MRI Manganese Deposition in the Brain. *International Neuropsychological Society 45th Annual Meeting, New Orleans, Louisiana,* February 1-4, 2017.

***Research Support:***

**Ongoing Research Support**

Freeman/Dydak/Samuel (MPIs) 02/23/2022 – 02/22/2023
Women's Global Health Institute Purdue

*Sex differences in neurological outcomes associated with agrichemical exposure in rural populations: A feasibility study*
Goal: To study sex differences in neurochemical changes and behavioral outcomes due to exposure to the herbicide atrazine.
Role: Multi-PI

Dydak (PI)
International Manganese Institute 09/01/2021 – 08/31/2023
*Exposure to Metal Mixtures in Welding Fumes*
Goal: To study the differential health effects of exposure to different metals in welders via Bayesian Network Analysis and comparison of aluminum and steel welders.
Role: PI

Dydak (PI)
**NIH / NIEHS R01 ES032478** 04/07/2021 – 01/31/2026
*Neuroimaging of Manganese Toxicity*
Goal: To define the spatial-temporal toxicokinetics of manganese (Mn) in the human brain exposed to welding fumes, and dose-dependent relationships of brain Mn to oxidative stress markers and neurological outcomes
Role: PI

Deligiannidis (PI)
**NIH/NIMH R01 MH120313** 04/01/2020 – 03/31/2025
*Relationships between Neuroactive Steroids, GABA and Glutamate MRS and Connectivity of the Default Mode Network in Postpartum Depression*
To study the roles of neuroactive steroids, in vivo neurotransmitter levels and functional brain circuits in Postpartum Depression
Role: Co-I

Dydak / Liangpunsakul (Multi-PIs)
Indiana CTSI Collaboration in translational research (CTR) Grant 05/01/2020 – 04/30/2022
*Predicting Hepatocellular Carcinoma Using Magnetic Resonance Spectroscopy*
The goal of this project is to use the spectroscopic profiles of 1H and 31P MRS of the liver to predict the occurrence of liver cancer in patients with fatty liver disease.
Role: PI

Durazzo & Yoder (PI)
**NIH/NINDS R01** AA026014 09/20/2018 - 08/31/2023
*Compounded Neuronal Damage in Comorbid Cigarette Smoking and Addiction*
This project will use multi-modal neuroimaging techniques to determine the dose-response function of cigarette smoking history on brain damage.
Role: Co-I

Anderson (PI)
**NIH R01 HL140488** 04/01/2020 – 03/31/2023
*Sodium Regulation in Individuals on Known Dietary Sodium Intake*
Goal: To use MRI and neutron activation to test the dependence of muscle, skin and bone sodium content on diet
Role: Co-I

Dydak (PI)
International Manganese Institute 09/01/2018 – 08/30/2022
*Can Toenail Mn Levels predict Brain Mn levels?*
Goal: To study whether a relationship exists between toe nail manganese levels and brain Mn levels as measured by MRI, as a function of time delay between toenail clipping and MRI.
Role: PI

Dydak (PI) 08/1/2018 – 07/31/2022
Indiana CTSI/CTR
*Development of High-Resolution Metabolic Imaging of the Human Liver*
Goal: To develop and test reproducibility of a high-resolution 31P and 1H MRSI sequence of the human liver for applications in liver disease
Role: PI

Isaac-Lam(PI)
Pudue Northwestern Catalyst Grant 01/01/2019 - 06/30/2022
*Imaging the Aging Human Brain*
To assess changes of GABA and Glutathione in the human brain as a function of age
Role: Co-Investigator

Isaac-Lam(PI)
Purdue Northwestern Interdisciplinary Grant 07/01/2018 - 12/31/2022
*Magnetic Resonance Imaging and Spectroscopy (MRI/MRS) for Biomarker Assessment of Oxidative Stress Intensified by Smoking in PTSD Subjects*
Role: External Advisor

**Completed Research Support**

Louis (PI)
**NIH/NINDS R01** NS085136 09/15/2013 – 07/31/2020
*In Vivo Quantification of Cerebellar GABA and NAA in Essential Tremor*
This project makes use of MRS to measure GABA levels in the cerebellar dentate and NAA in the cortex in a longitudinal study to elucidate the underlying pathophysiology of essential tremor
Role: Co-I

Park (PI)
University of Michigan COHSE NIOSH Pilot Grant 07/01/2019 – 12/31/2020
*Nano Particulates in Welding Fumes and Manganese Deposition in the Human Brain: Does Size Matter?*
To test the hypothesis that the exposure to nano-sized Mn in welding fumes is better correlated with Mn deposited in the brain than the exposure to Mn in respirable particles.
Role: Mentor & Co-I

Edmondson (PI)
**NIH/NIEHS F31** ES028081 06/01/2017 – 05/31/2019
*Multimodal Neuroimaging Approaches to Modeling Manganese Toxicity*

The goal of this project is to improve the quantification of Mn toxicity using MRI, mathematical and pharmacokinetic modeling.
Role: Mentor/Sponsor (David Edmondson is my PhD student)

Dydak (PI)
Gadamski Foundation – Collaborative Autism Research Grant 09/12/2016 – 04/28/2019
*Regional GABA Variations in Children with Autism Spectrum Disorder: A Novel 3D Multi-Voxel MRS Investigation*
The goal of this project is to show feasibility to use 3D GABA-edited spectroscopic imaging in healthy children and children with autism spectrum disorder.
Role: PI

Dydak (PI)
Purdue EVPRP Equipment Program 01/31/2019 – 05/31/2019
*Simultaneous Multi Slice Software License for the Purdue Life Science MRI Facility*
To obtain the license for SMS for the Purdue Life Science MRI Scanner
Role: PI

Keehn (PI)
Purdue Neuroscience Pilot Grant 07/01/2016 - 06/30/2019
*Attentional Strengths and GABAergic Function in Children with Autism Spectrum Disorder*
The goal of this project is to determine the relationship between attentional strength and GABAergic functioning, and between GABA abnormalities and ASD symptomatology
Role: Co-PI

Dydak (PI)
**NIH/NIEHS ONES R01** ES020529 09/12/2011 – 04/30/2018
*Neuroimaging for Early Diagnosis of Manganese Toxicity in Humans and Rodents*
This grant aims to develop and use novel MRI and MRS techniques to find biomarkers of effect and explore the underlying mechanism of Manganese neurotoxicity in the human and the rodent brain.
Role: PI

Dydak (PI)
CEREBBAL Pilot grant 01/09/2017 – 01/08/2018
MRI/MRS Sequence Development, Optimization, and Testing
The goal of this project is to optimize the setup of GABA MRS at the new Purdue Life Science MRI facility
Role: PI

Dydak (PI)
Purdue NIH Competing Renewal R01 program 11/01/2015 - 06/31/2017
*Imaging of Dopaminergic Neuron Function in Welders*
The goal of this project is to generate pilot data and show feasibility to study the inhibition of dopamine release, and thus dopaminergic neuronal dysfunction, using [11C]-raclopride PET imaging with amphetamine challenge in a subset of our well-established welder cohort.
Role: PI

Dydak (PI)
Laboratory & University Core Facility Research Equipment Program 03/02/2017 – 06/30/2017

Acquisition of a MARS6 Microwave Digestion System
The goal of this application was to obtain a state-of-the-art microwave digestion system
Role: PI

Dydak (PI)
**NIH/ORIP S10** OD012336 04/01/2015 - 31/03/2017
*3T MRI Scanner dedicated to Life Sciences Research*
To obtain a 3T research-dedicated MRI scanner for Purdue University
Role: PI

McGraw (PI)
Purdue Polytechnic Dean's award GRA program 08/22/2016 – 12/31/2017
*Hybrid rendering techniques for visualizing neural connectivity*
This projects funds a graduate student to develop effective interactive visualization techniques for diffusion tensor MRI (DT-MRI) and the neuronal connectivity maps.
Role: Co-PI

Mackie (PI)
Indiana CTSI 09/01/2015 – 08/31/2017
*Translational adolescent cannabis use research center*
This is a pilot grant to establish the necessary collaborations and pilot data for a NIH proposal to form a center to investigate the antecedents and effects of adolescent cannabis use in both preclinical models and in adolescent and young adult populations
Role: Co-I

Wells (PI)
NIOSH PPRT (UMichigan) 07/01/2015-06/30/2016
*Impact of welding material and exposure controls on manganese exposure and olfactory function: a natural experiment.*
The goal for this research project is to improve our understanding of how co-exposure to different metals in welding fumes may affect manganese exposure among welders.
Role: Co-PI

Dydak (PI)
Purdue University Center for Cancer Research Challenge Grant 04/01/2012-03/31/2015
*3D 31P MRSI of Human Liver: A Spatially-resolved Study of Normal and Malignant Tissue Response to Radiation Therapy*
Role: PI

Wells (PI)
NIOSH PPRT 07/01/2014 – 06/30/2015
*Impact of co-exposure to metals on manganese neurotoxicity*
To assess the impact of co-exposure to Zn, Fe, Al, Cu and Pb to neurotoxic effects of exposure to manganese in welding, by measuring blood and air metal concentrations and correlating them to cognitive and neuroimaging findings.
Role: Co-PI

Neu (PI)

**NIH/NIAMS** R21 MH098931 09/01/2012 – 08/31/2014
*Combined Biophysical and Biochemical Study of Single Cells*
The objective of this application is to develop a hybrid magnetic resonance-based nanotechnology that enables simultaneous imaging and spectroscopy of single cells.
Role: Co-I

Talavage (PI) 08/01/2012 – 07/31/2014
Indiana CTSI, Spinal Cord and Brain Injury Research Fund (SCBI 207-32)
*MR Spectroscopic Quantification of Brain Injury in High School Athletes*
To assess metabolic changes and their association with hit history and cognitive outcomes in high school football players.
Role: Co-PI
Dydak (PI)
Purdue Research Foundation Research Award 06/01/2013 – 05/31/2014
*GABA MR spectroscopy as a potential biomarker for Parkinson disease*
This project will use magnetic resonance spectroscopy to study the hypothesis that increased basal ganglia GABA levels might serve as early biomarker in Parkinson's Disease.
Role: PI

Campbell W (PI)
National Dairy Council 09/01/2011 - 09/30/2013
*Effects of milk protein concentrate on blood pressure, inflammation, muscle composition, and metabolic health in overweight/obese adults*
To assess the effects of an energy restriction, higher protein diet achieved using milk protein concentrate beverage supplements on blood pressure, inflammation, muscle composition, and metabolic health in overweight/obese adults before, at mid-point and after a 16-wk dietary intervention.
Role: Co-I

Dydak (PI) 06/01/2012 – 05/31/2013
Purdue Research Foundation Research Award
*MR spectroscopy for understanding brain gamma-aminobutyric acid (GABA) alteration and its association with dopamine (DA) neuronal degeneration in manganese (Mn)-induced Parkinsonism*
Role: PI

Dydak (PI) 09/05/2009 – 06/30/2011
**NIH/NIEHS R21** ES017498
Effect of Manganese Exposure on GABA and Glutamate in Human Brains by MRS
This project will apply novel MRI/MRS techniques to explore the changes in brain metabolism caused by Mn exposure among smelting workers and patients with Mn-induced Parkinsonism.
Role: PI
Dydak (PI) 01/01/2011 – 12/31/2012
CTSI Core Pilot Funding
*In-Vivo GABA MRS of Metal Toxicity in the Human Brain*
To install and test the GABA-editing technique MEGA-PRESS at the Purdue MRI scanner and acquire pilot data in five Mn-exposed welders.
Role: PI

Dydak (PI) 01/01/2010 – 12/31/2012

CTSI Core Pilot Funding
Development of Fast GABA Mapping in the Human Brain
To develop and test the technique of MEGA-PEPSI for GABA spectroscopic imaging in phantoms and in vivo.
Role: PI

Janle E (PI) 05/01/2012 – 04/30/2013
Mead Johnson
*Assessment of the bioavailability and functionality of brain-targeting polyphenol metabolites in piglets*
Role:Co-I

Campbell W (PI)
American Egg Board –Egg Nutrition Center 01/01/2011 – 12/31/2012
*Effect of increased egg-based protein intake on muscle composition, metabolic health and systemic inflammation in obese older adults.*
Role: Co-I

Goddard and Dydak (PIs) 03/01/2009 – 02/28/2011
Indiana CBR/CTR Pilot Grant
GABA Neuronal Dysfunction in Panic Disorder: Assessing the Effect of Family History
The major goals of the project are to demonstrate that the magnitude of the cortical GABA deficit in patients with panic disorder is related to the presence or absence of a family history of panic disorder by MRS.
Role: Co-PI

Anand/Dydak (PI) 08/01/2009 – 06/30/2013
Indiana CBR/CTR Pilot Grant (CTSI)
Neurochemistry of Mood Regulating Circuit in Bipolar Disorder: An Ultrafast Whole Brain Magnetic Resonance Spectroscopy (MRS) Study
The major goal of this pilot project is to use the whole brain PEPSI-MRSI sequence to assess brain metabolism and its changes in untreated patients with bipolar disorder.
Role: Co-PI

Dydak/Sandrasegaran (PI) 07/01/2009 – 06/30/2011
Indiana CBR/CTR Pilot Grant (CTSI)
31P magnetic resonance spectroscopy in liver cancer: Evaluation of response to yttrium-90 radio-embolization therapy
The major goal of this pilot project is to test feasibility and reproducibility of acquiring 31P MRSI data from liver cancer tumors treated with yttrium-90 radio-embolization.
Role: PI
Sandrasegaran (PI) 09/01/2008 - 08/31/2010
Showalter Trust Award – Indiana Univeristy
*Determination of Response Of Hepatocellular Cancer to Stereotactic Body Radiation Therapy: Value of Diffusion-Weighted Magnetic Resonance Imaging and Phosphorus-31 MR Spectroscopy*
Diffusion-Weighted MRI and Phosphorus-31 MR Spectroscopy are applied to monitor the response of hepatocellular cancer to stereotactic Body Radiation Therapy.
Role: Co-investigator

Dydak (PI) 07/01/2009 – 06/30/2010
Showalter Trust Award – Purdue University
New Therapeutic Treatment of Manganese Parkinsonism by Para-amino Salicylic Acid: Magnetic Resonance Imaging and Spectroscopy Study
The major goals of the project are to explore the effects of Para-amino salicylic acid as a therapeutic agent for manganism by means of MRS in the rat.

Dydak (PI) 12/01/2007 – 09/30/2010
IUSM – Siemens Pilot Funding Program
*Implementation and Evaluation of fast MRSI techniques for brain and body MRSI at 3T*
Implementation and optimization of parallel spectroscopic imaging methods (SENSE and GRAPPA), as well as an EPI-based and a multiple-spin-echo based technique on a Siemens 3T MRI scanner. Evaluation of the optimal techniques for applications in human brain and breast.
Role: PI

Sandrasegaran (PI) 03/01/09 – 02/28/10
Society of Gastrointestinal Radiologists
*Early Prediction of the Response of Hepatocellular Cancer to Yttrium-90 Radio-embolization using MRI and MR Spectroscopy*
This study will investigate the value of diffusion-weighted MRI and 1H-MRS to monitor the response of hepaticellular cancer to Yttrium-90 Radio-embolization therapy.
Role: Co-investigator

Zheng (PI) 04/01/08 - 03/31/09
U.S. DoD USAMRMC W81XWH-05-1-0239
MRI and MRS in Manganese-Exposed Smelting Workers: Relationship to
External and Internal Exposure Indices
This study will use magnetic resonance imaging and spectroscopic techniques to mechanistically explore Mn-elicited neuronal damage among a well-established smelter cohort in Zunyi, China.
Role: Co-investigator

34250603 Sandor (PI) 09/24/2003 – 12/31/2006
Merck Medical School Grant,
*Neuronal activity and metabolism in the common forms of migraine, including central effects of rizatriptan, studied with functional magnetic resonance techniques.*
This study investigated changes in metabolism during extended periods of visual stimulation in common forms of migraine, including the effects of the medication rizatriptan, by means of dynamic MR spectroscopic imaging.
Role: Co-Investigator

SEP TH-7/02-2 Boesiger (PI) 06/2002 – 06/2005
Strategic Excellence Projects, ETH Zurich
*User lab MRI: New Magnetic Resonance Imaging Techniques for the Assessment of Brain and Heart Function*
Methodological developments of high field (3T) MRI and MRS techniques for the assessment of brain and heart function
Role: Co-Investigator

54250601 Sandor (PI) 10/01/2002 – 12/31/2004
Research Grant of the University Zurich
*Neuronal activity and metabolism in the common forms of migraine and the effect of prophylaxis studied with functional magnetic resonance techniques.*
This study investigated possible changes in metabolism during extended periods of visual stimulation in patients with common forms of migraine and control subjects by means of dynamic MR spectroscopic imaging.
Role: Co-Investigator