

October 18, 2010

UPCOMING MEETINGS

Tuesday, October 19

- Undergraduate Committee, CIVL 2173 (11 a.m.)

Wednesday, October 20

- EAS Professional Science Masters (PSM) Task Force, CIVL 2201 (1:30 p.m.)

Friday, October 22

- Executive Committee, CIVL 2201 (1 p.m.)

Monday, October 25

- EAS Faculty Meeting, CIVL 3201 (11:30 a.m.)

EAS SEMINAR

Thursday, October 21, at 3:30 p.m. in CIVL 1252:

"Paleoaltimetry of the Himalayas and Tibet: Why Size Matters." David Rowley, University of Chicago

Refreshments at 3 p.m. in CIVL 2201

For more information, see the EAS online [calendar](#).

OUR RECENT PUBLICATIONS

Rochon, G. L., J. E. Quansah, S. Fall, B. Araya, L. Biehl, T. Thiam, S. Ghani, L. Rakotomala, H. S. Rochon, A. T. Valcarcel, B. H. Mbongo, J. Jung, D. Grant, W. Kim, A. R. M. Maud, and C. Maringhanti, 2010: Remote Sensing, Public Health & Disaster Mitigation in *Geotechnologies & the Environment*, Part IV Human Health & the Environment, Nancy Hoalst-Pullen and Mark W. Patterson, Eds., Springer Press, 187-210.

Rochon, G. L., L. Biehl, D. Grant, S. Fall, T. Thiam, B. Araya, B. H. Mbongo, J. Jung, S. Ghani, M. A. Wahab, G. S. E. Afandi, G. Altay, O. Ersoy, A. T. Valcarcel, and C. J. Gonzalez, 2010: Real-Time Remote Sensing in Support of Ecosystem Services and Sustainability in *Achieving Environmental Security: Ecosystem Services and Human Welfare*, P. H. Liotta, W. G. Kepner, J. M. Lancaster and D. A. Mouat, Eds., IOS Press (Amsterdam, Netherlands), 217-223.

Rochon, Gilbert L., 2010: Remote Sensing for Disaster Response in *Encyclopedia of Geography*, Barney Warf, Piotr Jankowski, Barry Solomon, et. al., Eds., Sage Publications Reference Project, six volume set, 3,560 pp. <http://www.sagepub.com/books/Book230922>

Stamps, D. S., L. M. Flesch, and E. Calais, 2010: Lithospheric buoyancy forces in Africa from a thin sheet approach. *Int. J. Earth Sci. (Geol Rundsch)* (2010) 99:1525–1533 DOI 10.1007/s00531-010-0533-2.

Xiong, X., C. D. Barnett, Q. Zhuang, T. Machida, C. Sweeney, and P. K. Patra, 2010: Mid-upper tropospheric methane in the high Northern Hemisphere: Spaceborne observations by AIRS, aircraft measurements, and model simulations, *J. Geophys. Res.*, 115, D19309, doi:10.1029/2009JD013796.

RECENT PRESENTATIONS

Eric Riggs gave an invited talk at the University of British Columbia on October 7 for the Carl Wieman Science Education Initiative and the Department of Earth and Ocean Sciences. The talk was titled, "Decision Making and Problem Solving in Geologic Fieldwork."

D. Sarah Stamps presented an invited talk at the IGCP 565 Workshop on Separating Hydrologic and Tectonic Signals in Reno, Nevada on Monday, October 11, 2010, entitled "GPS Experiments in the East African Rift."

Jay Melosh presented a talk in London, England at the Geological Society of London to celebrate the 200th anniversary of the Geological Society. The title of his talk was "Impacts," which was given twice (once in the afternoon and once in the evening) on October 13. The talk was sponsored by Shell Oil Company. It was recorded and will eventually be available at www.geolsoc.org.uk/shellondonlectures10.

Jeff Trapp and EAS graduate students Jacob Carley, Eric Robinson, Ben Schwedler, and Mallie Toth attended the American Meteorological Society's 25th Conference on Severe Local Storms, held 11-14 October in Denver, Colorado. The following presentations were given:

[Attribution of interannual variations in tornado frequency to regional atmospheric conditions](#), **Robert J. Trapp**, Purdue University, West Lafayette, IN

[A proposed methodology for model-based feature-specific prediction designed for high impact weather](#), **Jacob R. Carley**, Purdue University, West Lafayette, IN; and B. R. J. Schwedler, M. E. Baldwin, R. J. Trapp, J. Kwiatkowski, J. Logsdon, and S. J. Weiss

[Exploring Doppler radar estimates of tornado intensity](#), **Mallie Toth**, Purdue University, West Lafayette, IN; and R. J. Trapp, J. Wurman, and K. A. Kosiba

[A comparison of radar observations to real data simulations of axisymmetric tornadoes](#), **Karen A. Kosiba**, Center for Severe Weather Research, Boulder, CO; and R. J. Trapp

[Tracking of mesoscale weather systems in a high-resolution convection-permitting simulation of current climate](#), **Benjamin R. J. Schwedler**, Purdue University, West Lafayette, IN; and M. E. Baldwin and R. J. Trapp

[Regional trends of severe convective weather from high-resolution WRF simulations](#), **Eric D. Robinson**, Purdue University, West Lafayette, IN; and R. J. Trapp, M. Baldwin, N. S. Diffenbaugh, and A. Gluhovsky

Jeff Trapp chaired Session 6. Recent EAS alumni Dusty Wheatley, Kent Knopfmeier, Karen Kosiba, Angie Lese, and Dan Dawson were also in attendance.

INDIANA GEOLOGISTS MEETING ATTENDANCE

Terry West attended the Indiana Geologists monthly meeting in Indianapolis on Wednesday evening, October 13, 2010. Yinghui Sui, recent Ph.D. graduate of the EAS Department, accompanied Dr. West to the meeting of about 25 professional geologists from Central Indiana. Bret Robinson, from the USGS in Indianapolis, presented the evening's program, "Carbon Dioxide Intrusion in Homes Built on Reclaimed Coal Mines." The Indiana Geologists organization also served as the co-sponsors of the recent field trip (October 9) to the Kentland Meteorite Impact Structure, located about 50 miles north of Lafayette.

BEST STUDENT PAPER AWARD

The presentation given by graduate student Ming Lei (Advisor: Niyogi) at the 9th Urban Symposium this summer in Keystone Colorado entitled, *Does the Summer Heavy Rainfall Climatology over east United States show Urbanization Impacts?* was selected to receive a Best Student Paper Award by the American Meteorological Society. Congratulations Ming!

UCAR SCIENCE ADVOCATE AWARDEES 2010



The picture above is of this year's UCAR Science Advocate Award Winners. They are: Front: Don Wuebbles, Richard Grotjahn, Ernie Agee, Kerry Cook, Fred Carr, Rana Fine, Xiaoqing Wu and Back: Rich Clark, Ken Eack, Gary Ostrander, Alan Robock, Bob Ellingson, Mike Poellot, and Fred Stafford. Missing: Steve Krueger. If you missed the meetings last week, please go to the [OGA website](#) to view congratulatory remarks from Science Advisor to the President, John Holdren and Senator Mark Udall on UCAR and NCAR's 50th Anniversary.

NEW SCHOLAR IN EAS

Mingyi Zhang Visiting Scholar



I am an associate professor working in the Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences. My current research interests are in climate change, cold regions engineering and permafrost. I am focusing on how the thermal conditions of permafrost on the Tibetan Plateau will respond to global warming. In particular, I am using numerical modeling and experiments to develop new measures and techniques to ensure the long-term thermal stability of construction embankments in permafrost regions. This is very important for the long term survival of roads, railways, pipelines and other structures in permafrost regions, and is of interest to scientists and engineers working in permafrost areas such as Alaska, Canada, northern Europe and the Tibetan Plateau. At Purdue University I will spend one year collaborating with scientists and engineers who are also pursuing research in this field.

The Department of Earth and Atmospheric Sciences at Purdue University is a world-famous earth and environmental sciences research department. My host and collaborator there is Professor Jon Harbor,

Head of the Department. He is an outstanding scientist focusing on earth surface processes in permafrost regions of the Tibetan Plateau. I will pursue joint research and study with professor Harbor and other faculty at Purdue University who are focused on climate, environment and permafrost research. I hope that the thermal boundary condition problems in my numerical model can be solved in the collaborative research by the method of land surface process.

ALUMNI AND FRIENDS RECEPTIONS AT SEG, GSA, AGU AND AMS

SEG Alumni and Friends Reception and a Celebration of Bill Hinze's 80th Birthday
Monday, October 18, 6:30-8:30p
Grand Hyatt, Denver, Crystal Peak, Pinnacle Club, 38th floor, 1750 Welton St.

GSA Alumni and Friends Reception
Monday, November 1, 7:00-9:00p
Grand Hyatt, Denver, Pikes Peak Room, 1750 Welton St.

AGU Alumni and Friends Reception
Wednesday, December 15, 7:00-9:00p
ThirstyBear Brewing Company, Billar Room
661 Howard Street, San Francisco

AMS Alumni and Friends Reception (details to be announced)
Tuesday, January 25, 2011 6:30-8:30p
Seattle, Washington

FROM THE EAS LIBRARY Duplicate/Outdated Maps

The EAS Library is still cleaning house and finding duplicate and outdated maps. They are available in the map room above Map Case 29 for you to browse and take any that may interest you.

Newest Books

Click [here](#) to see a list of new books in the EAS library in the last two weeks.

2ND PURDUE GLOBAL FOOD SECURITY SUMMIT ON OCTOBER 21

Please set aside Thursday afternoon, October 21, 2010, for the 2nd Purdue Global Food Security Summit. This event would build on the broad-based discussions at the first Purdue Global Food Security Summit held on February 8, 2010 led by the two Purdue World Food Prize Laureates, Phil Nelson and Gebisa Ejeta... [Read more...](#)

HOMEcoming TENT

Solid Earth grads and undergrads shook the CoS tent at Homecoming this past weekend!



Dr. Shieh poses for a photo with the Solid Earth students staffing the homecoming tent.

Saturday the campus was filled with alumni, faculty, staff, students, and all sorts of excited people! The College of Science had a tent to showcase and excite the masses, and EAS's newest student group outshined all departments! With informational posters, Earthquake activity, rock specimens, and charm, the Purdue University Geological Society (P.U.G.S.) managed to hold the majority of the people's attention at the event. Thank you for representing the department so well!

DEAR COLLEAGUES...

Please see the final exam [letter](#) from Provost Tim Sands to all those with teaching status.



2010 GSA Annual Meeting

31 October – 3 November • Denver, Colorado

BEYOND "CLIMATEGATE"

What Role for Science and the Media in the Making of Climate Policy?

Date: Wednesday, November 3, 2010

Venue: The Shively Club in Ross Ade Pavilion

Time: 7:30 p.m.

ROGER PIELKE, JR.

University of Colorado

ANDREW REVKIN

New York Times and Pace University

JUDY CURRY

Georgia Institute of Technology

**Have scientists become 'too political' in their advocacy of particular climate Change mitigation and adaptation policies?

**How has the media shaped the way that climate science is debated, disputed, and created?

**Moving forward, is there a better role for climate scientists in political and policy debates, and if so, what would it look like?

NOBCCHE CONFERENCE

The University of Iowa will host the Midwest Regional Conference for the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) this year November 11th-13th. Our theme is "STEMulating Our Future" with emphasis on education, funding and research. [Read more...](#)

FACULTY FELLOWSHIPS FOR STUDY IN A SECOND DISCIPLINE

The Faculty Fellowships for Study in a Second Discipline program offers faculty members an opportunity to extend their scholarship through study in a new but related discipline or area of study. This program was established to promote interdisciplinary teaching and research. EAS encourages those who are interested and meet the qualifications of the program to apply. The deadline for application submission is **December 10, 2010**. Guidelines and an application form are available at http://www.purdue.edu/provost/shtml/faculty/development/2nd_discipline.html. Fellowships will be awarded for one semester or academic year beginning August 2011 and/or January 2012.

GRADUATE STUDENT TRAVEL AWARD DEADLINES

A.H. Ismail Interdisciplinary Doctoral Research Travel Award

Deadline: October 22, 2010. Awarded by the Graduate School... [Read more...](#)

Frederick N. Andrews Environmental Grant & the Blosser Environmental Travel Grant

Deadline: October 29, 2010. Awarded by the Graduate School... [Read more...](#)

A NOTE FROM OUR ACADEMIC COUNSELOR LSAMP Indiana Undergraduate Research Program

Applications are now being accepted for the spring session of the Louis Stokes Alliance for Minority Participation Indiana Undergraduate Research Program. This program emphasizes the development of broad-based regional and national alliances of academic institutions, school districts, state and local governments, and the private sector to increase the diversity and quality of the STEM (science, technology, engineering and mathematics) work force. The deadline to apply for spring 2011 is **November 12**. Eligibility requirements and an application are available at the LSAMP website, www.purdue.edu/lisamp, or by e-mailing lisamp@purdue.edu.

Reminders

Wednesday, **October 27**, is the last day to withdraw from a fall class. Paperwork and signatures required.

Undergraduate students with semester classifications of 7 or 8 (senior) will be able to enter spring 2011 classes the week of **November 1 (start time varies) - November 6 (until 12 noon when it closes to you until December 1)**.

Nancy

HAPPY BIRTHDAY!!!

Dev Niyogi – October 18

Darrell Leap – October 19

Gabe Bowen – October 21

Sonia Lasher-Trapp – October 22

Kathy Kincade – October 24



IMPORTANT NOTICE ABOUT THIS NEWSLETTER

This newsletter will now be used as the primary information source for current and upcoming events, announcements, awards, grant opportunities, and other happenings in our department and around campus. Active links to additional information will be provided as needed. Individual email announcements will no longer be sent unless the content is time-sensitive. We will continue to include our publications, presentations and other recent news items as well. Those using paper copies of the newsletter should go to our newsletter archive on the EAS website at www.purdue.edu/eas/ and **Click on News** to access active links as needed. Material for inclusion in the newsletter should be submitted to Gina Richey (grichey@purdue.edu) by **Friday noon** of each week for inclusion in the Monday issue. **If it is in the newsletter, we assume you know about it and no other reminders are needed.**

For answers to common technology questions and the latest updates from the EAS Technology Support staff, please visit <http://www.purdue.edu/eas/resources/it>.

Also, as an additional resource for information about departmental events, seminars, deadlines, etc., see our departmental calendar at <http://calendar.science.purdue.edu/eas/seminars>.





Take the Purdue **Piggy Bank Challenge!**

Open a Piggy Bank Challenge account and save your pennies through next spring. Then deposit up to \$500 of your savings into a CD. Earn 10% APY for 6 months!*

Pick up your bank at the Money Smart Week table in Stewart Center or at our Northwestern & PMU branch locations.

Money Smart Week

Monday, Oct. 18

Workshop: Understanding Your Credit Scores
Stewart 318: Megan Federer, PEFCU

Tues., Oct. 19

Workshop: How to Cut Your Grocery Bill
Stewart 318: Karen Hosterman-Sabel, Purdue University

Wed., Oct. 20

Workshop: Talking Through the Tough Times
Stewart 318: Judith Myers-Walls, Purdue University

Thurs., Oct. 21

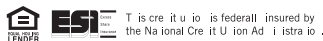
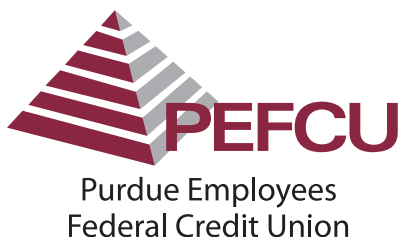
Workshop: Fighting Back Against Identity Theft
Stewart 318: Jean Akers, Purdue Extension

Fri., Oct. 22

Workshop: Figuring Out Your Financial Plan
PMU 263: Chase Newsom, CFP - City Securities Corporation

To register or get more information, go to www.purdue.edu/worklife or call 494-5461.

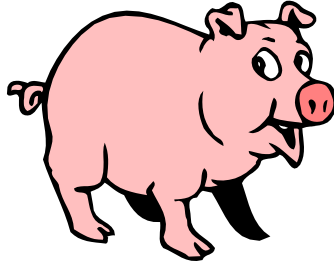
Purdue University Human Resources partners with PEFCU.



497.3328 / www.purduefcu.com

*Subject to approval. Membership eligibility required. Open a special Piggy Bank Challenge share account between October 18-23, 2010. Share account minimum opening deposit is \$5. Deposit into the share account from October 18, 2010, through February 27, 2011. Between February 28-March 12, 2011, roll the share account balance into a high-interest share certificate (CD) earning 10% annual percentage yield for six months. Minimum share certificate deposit is \$100. Only one piggy bank challenge account per family. Other rates and terms available. Early withdrawal penalties from share certificate may apply.

8th Annual EAS/PRIME Lab Hog Roast & Bonfire



October 23, 2010
5:30pm-??

At the home of Darryl and Allison Granger
3025 State Road 25 West
Shadeland
471-4654

Please Bring:

A side dish or drinks, and a chair to sit on!

Directions:

From West Lafayette, take 231 S across the river and turn right at State Road 25 W. Continue for about 3 miles (just past the gas station). Look for a white farmhouse on the left and a big red barn.

Please Join Us to celebrate

the

Recipient of the 2010-2011

Outstanding Commercialization Award

for Purdue University Faculty

George R. Wodicka

Professor and Head of

Weldon School of Biomedical Engineering

he will speak on

“The Pulse of Miniature Sonar”

Thursday, November 4, 2010

Krannert Auditorium

West Lafayette, IN

Reception ~ Krannert Drawing Room (South Side) ~ 3:30-4:00 p.m.

Lecture ~ Krannert Auditorium ~ 4:00-5:00 p.m.

Please RSVP to Cheryl Butz at cab@purdue.edu on or before October 28, 2010

The Outstanding Commercialization Award is given to a Purdue tenure-track faculty member in recognition of outstanding contributions to and success with commercialization of Purdue research discoveries.

The fund was established with an Endowment gift by the Central Indiana Corporate Partnership (CICP) Foundation.

Workshop: Whole Animal Imaging with μ SPECT/ μ CT

Presented by the Bindley Imaging Group (BIG)

When: 9 am - 3 pm, November 8th, 2010

Where: Burton D. Morgan Center for Entrepreneurship, room 129; Scanning & reconstruction demonstration in BBC 158.

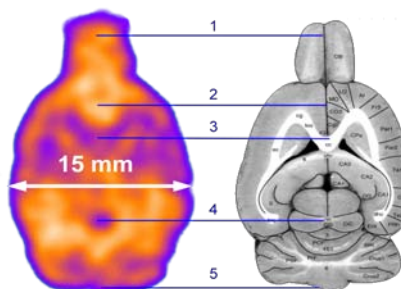
Micro SPECT (Single Photon Emission Computed Tomography) imaging is an emerging technology, which enables dynamic and three-dimensional visualization of tracer molecules within living animals at unprecedented resolutions (0.35 mm). This technology has been applied to a diverse set of molecular imaging applications in the Life Sciences, such as monitoring dopamine transporter pathways, assessing myocardial infarction, and targeting cancer specific receptors. The first US installation of the unique MiLabs U-SPECT-II/CT scanner is in the Purdue Bioscience Imaging Facility at the Bindley Bioscience Center.

This workshop will convene with a presentation by the technology platform inventor, Dr. Freek Beekman, and then introduce both the operating principles and use of this new technology. Dr. Beekman is a world-renowned expert on micro SPECT technology and the founder of MiLabs, BV (Utrecht, Netherlands). Next, Dr. Keith Stantz, Assistant Professor of Health Sciences (Purdue) and Adjunct Professor of Radiology (IU School of Medicine), will discuss the logistics of applying this technology to address biological questions of small animal imaging. Finally, the afternoon session will include a demonstration of animal scanning, image reconstruction, and image analysis. Laboratory space is limited, so attendees of the afternoon session are asked to RSVP to Luanne Ludwig at lml@purdue.edu by November 1st.

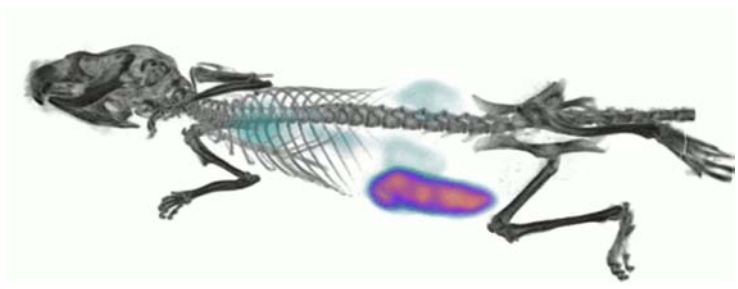
For more information:

<http://www.purdue.edu/discoverypark/bioscience/facilities/imaging/>

<http://www.purdue.edu/discoverypark/bioscience/facilities/imaging/instruments/u-spect.php>



Perfusion of a rat brain



Targeting Imaging of a Tumor

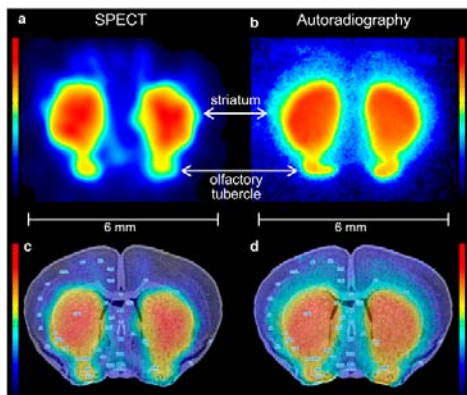
Bindley Bioscience Center
Invites You to a Presentation by

Freek J. Beekman, Ph.D.
Delft University of Technology / MILabs

Monday, November 8th
9:00 am to 10:00 am
Burton D. Morgan Center for Entrepreneurship, room 129

”SPECT/PET of Molecules and Organs in Action at sub millimeter resolution”

An overview of the U-SPECT-II and VECTor technology will be given as well as current research on novel collimation methods, image reconstruction and detector technologies for next generations SPECT/PET devices.



For more details, see back side of this announcement.

Prof. Freek Beekman received a M.Sc. in Physics from the Radboud University Nijmegen, The Netherlands (1991) and a Ph.D from the University Medical Centre Utrecht, The Netherlands (1995). At Delft University of Technology he is the heads of the group Radiation, Detection & Medical Imaging. He (co-)authored >100 peer reviewed journal papers, several book chapters and 20 patent applications. He was presented with several international awards for his scientific contributions to SPECT technology and its application in Neurosciences. His research interests include radiation technology applied to biomedical imaging (radiation detectors, SPECT, PET, transmission CT and new (hybrid) modalities), image reconstruction from projections, and biomedical applications of SPECT, PET and X-ray CT. Prof. Beekman acted as an associate editor of several journals and is Board Member of Physics in Medicine and Biology (IOP). He is principle founder and part time officer of MILabs (www.milabs.com) that develops and markets SPECT, SPECT/CT and SPECT/PET/(CT) systems with an unsurpassed spatial and temporal resolution.



Pivotal questions in pharmacology and biology concern how function of localized cells relates to disease. For example in experimental neuroscience we have dreamt about a magnifying glass that would allow us to see neurotransmitters in action, in cardiovascular research about a system that would provide us simultaneously with myocardial anatomy, mechanical function and cell function, and in cancer research to see detailed dynamic distributions of pharmaceuticals and markers, in small animals serving as models for human disease. Such studies have been limited by the availability of methods to study such molecular dynamics. A Single Photon Emission Computed Tomography system called U-SPECT has been developed in The Netherlands. It can quantify tracer dynamics in <0.35mm structures e.g. in murine brain, heart and tumors.

U-SPECT uses sophisticated focusing pinhole geometries together with unique 3D focusing technology and list mode data acquisition. Novel reconstruction methods that enable to enhance resolution are applied, accelerated by pixel-based block iterative update schemes.

Examples include imaging the density and occupancy of dopamine transporters in sub-compartments of the brain, sub-half-mm resolution dynamic myocardial perfusion imaging or imaging of tumor markers and anti-cancer agents (e.g. antibodies) in micro-metastasis, all during a range of points in time. Applied to different models of disease this will aid our understanding of dynamic processes that underlie tissue functions and human pathology. New sub-half-mm resolution U-SPECT-II and U-SPECT/CT images and movies with sub-minute resolution will be shown.

Recently Dr. Beekman's group developed a new way to perform U-SPECT imaging and sub-mm PET simultaneously (!). This new device (VECTor: Versatile Emission Computed Tomography, www.milabs.com) is based on a proprietary clustered multi-pinhole technology.

Key references:

1. F. van der Have, B. Vastenhouw, R.M. Ramakers, W.J. Branderhorst, J.O. Krah, C. Ji, S.G. Staelens, and F. J. Beekman. U-SPECT-II: An Ultra-High-Resolution Device for Molecular Small-Animal Imaging, *J. Nucl.Med.* 2009
2. F.J. Beekman and F van der Have. "The Pinhole: gateway to ultra-high resolution three-dimensional radionuclide imaging", *Eur. J. Nucl. Med. Mol. Im.*, 4(2):151-61, 2007
3. B Vastenhouw et al. Movies of dopamine transporter occupancy with ultra-high resolution focusing pinhole SPECT. *Mol. Psych.*, 2007
4. B. Vastenhouw and F.J. Beekman, "Total Body Murine Imaging with the U-SPECT-I". *J. Nucl. Med.*, 48(3):487-493, 2007
5. F.J. Beekman et al. "U-SPECT-I: A novel system for submillimeter-resolution tomography with radiolabeled molecules in mice", *J. Nucl. Med.*, vol. 46, pp. 1194-1200, 2005.
6. W. Branderhorst, B. Vastenhouw and F.J. Beekman. Pixel-based subsets for rapid multi-pinhole SPECT reconstruction. *Phys. Med. Biol.*, 2010
7. M.C. Goorden and F.J. Beekman, High-resolution tomography of positron emitters with clustered pinholes. *Phys. Med. Biol.*, 2010