

August 11-13, 2025 Purdue University, West Lafayette, IN, US

Venue:

Stewart Center, Purdue University 128 Memorial Mall, West Lafayette, IN 47907-2034

Monday, August 11, 2025

08:00-08:45 Registration (in front of Room 214)

Breakfast (Room 218)

08:45-09:00 Welcome and opening (Room 214)

Opening plenary lecture (Room 214)

Chair: Meenesh R. Singh, University of Illinois Chicago / USA 09:00-10:00 New Problems in Population Balances

<u>Doraiswami Ramkrishna</u> Purdue University / USA

10:00-10:30 *Coffee Break* (Room 218)

Special session (Room 214)

Chairs: Nandkishor K. Nere, AbbVie / USA

Meenesh R. Singh, University of Illinois Chicago / USA

10:30-12:00 In Honor of Doraiswami Ramkrishna's Contributions to Population Balance

Modeling (Invited Talks)

- 1. Gintaras (Rex) Reklaitis, Purdue University / USA
- 2. Rakesh Agrawal, Purdue University / USA
- 3. Ganesan Narsimhan, Purdue University / USA
- 4. Hyun-Seob Song, University of Nebraska-Lincoln / USA
- 5. Meenesh Singh, University of Illinois Chicago / USA
- 6. Nandkishor Nere, AbbVie / USA

12:00-13:30 *Lunch Break* (Room 218)

Plenary lecture (Room 214)

Chair: Gintaras (Rex) Reklaitis, Purdue University / USA

13:30-14:15 Population Balance Modeling for Emerging Biotherapeutic Products

Richard Braatz MIT / USA



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Trailblazers in Modeling and Simulation of Particulate Processes: Session 1 (Room 214)

Chairs: Achim Kienle, Otto von Guericke University Magdeburg / Germany

Kensaku Matsunami, Purdue University / USA

14:15-14:45	Broad Impact of Population Balance Modeling on the Pharmaceutical Process Development Manish Kelkar AbbVie / USA
14:45-15:15	Utilization of coupled heat, mass and Population balance models to optimize Spray Drying Processes Christopher L. Burcham, Patrick Harris, Suela Jonuzaj, Yogesh P. Patil, John P. Rose Eli Lilly and Company / USA
15:15-15:45	Coffee Break and Poster Session (Room 218; see pages 6-7)
15:45-16:15	Model predictive control of granulation using integrated population balance and machine learning models Rohit Ramachandran, Bhavani N. M. Manuraj, Ronit Gandhi Rutgers University / USA
16:15-16:45	Two decades of population balance applications from Ghent rooted in Purdue Ingmar Nopens Ghent University / Belgium
16:45-17:15	Population Balance Modeling – versatility in methods and applications Heiko Briesen Technical University of Munich / Germany

19:30 – *Conference dinner*

Location: Buchanan Club in the Ross-Ade Stadium (15 mins walk from the venue)



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Tuesday, August 12, 2025

08:00-09:00 **Breakfast** (Room 218)

Plenary lecture (Room 214)

Chair: Zoltan K. Nagy, Purdue University / USA

09:00-09:45 PBM's in Industrial Crystallization Systems Engineering

Botond Szilágyi

Budapest University of Technology and Economics / Hungary

Trailblazers in Modeling and Simulation of Particulate Processes: Session 2 (Room 214)

Chairs: Christopher L. Burcham, Eli Lilly / USA Baron Peters, U Illinois Urbana-Champaign / USA

09:45-10:15 Benefits and Challenges in Applying Population Balance Modeling to

Industrial Case Studies: Wet Milling, Crystallization, and Integrated Processes

Ankur Kapil, Michael Hamlin

Veranova / USA

10:15-10:45 Improving a Reactive Crystallization through an Integrated Thermodynamic,

Reaction Kinetic, and Population Balance Modeling Approach

Venkat Bhamidi Corteva / USA

10:45-11:15 Coffee Break and Poster Session (Room 218; see pages 6-7)

Oral Presentations: Session 1 (Room 214)

Chairs: Wei-Lee Wu, AbbVie/ USA Yash Barhate, Purdue University / USA

11:15-11:35 Double Emulsions Preparation in Stirred Tank: Modeling the Release Kinetics

through a Population Balance Framework

Ranim Chakleh, Noureddine Lebaz, Nida Sheibat-Othman

Universite Claude Bernard Lyon / France

11:35-11:55 Improving oxygen transfer predictions in aeration operations with a

lightweight and spatially resolved population balance model Pablo Gallo, Diogo Abreu, Andreia Amaral, Ingmar Nopens

Ghent University / Belgium

11:55-12:15 Cells utilize common intracellular reactions to modulate population

variability Che-Chi Shu

National Taipei University of Technology / Taiwan

12:15-13:45 *Lunch Break* (Room 218)



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Trailblazers in Modeling and Simulation of Particulate Processes: Session 3 (Room 214)

Chairs: Rohit Ramachandran, Rutgers University / USA Heiko Briesen, Technical University of Munich / Germany

13:45-14:15 Kinetic Modeling Across Scales to Understand Complex Chemistry of Polymer

Deconstruction Linda J Broadbelt

Northwestern University / USA

14:15-15:15 Bayesian- and Mechanism-Enabled PBM in Space and Time

<u>Patrick D Shipman</u>, Rick Finke, Stephen Thompson The University of Arizona; Colorado State University / USA

15:15-15:45 Modeling and control of particle formation in fluidized beds

Achim Kienle

Otto von Guericke University Magdeburg / Germany

15:45-16:15 Realizable Numerical Schemes for Coupled CFD-PBE Problems

Alberto Passalacqua, Rodney O Fox

Iowa State University / USA

16:15-16:45 Population balance models for catalytic depolymerization: From elementary

steps to multiphase reactors

Baron Peters

U Illinois Urbana-Champaign / USA

16:45-17:15 Coffee Break and Poster Session (Room 218; see pages 6-7)

Oral Presentations: Session 2 (Room 214)

Chairs: Venkat Bhamidi, Corteva / USA

Alberto Passalacqua, Iowa State University / USA

17:15-17:35 Analytical solution to the discretized population balance equation for pure

breakage with application to kernel identification

Prem K.R. Podupu, Vamsi V. Gande, Ragavendra Hari, Akshay Korde, Manish

S. Kelkar, Nandkishor K. Nere, Meenesh R. Singh University of Illinois Chicago; AbbVie / USA

17:35-17:55 Monte Carlo Simulation as a Population Balance Model Solver Method - A

Comparative Study of Stochastic and Non-Stochastic Methods

László Balogh, Attila Egedy, Ágnes Bárkányi

University of Pannonia / Hungary

17:55-18:15 Predicting crystal size distribution in a drying saline droplet: A comparative

study of PBM approaches

Benjamin Mignot, Tariq Mahmud, Peter J. Heggs, Mojtaba Ghadiri, Kevin J.

Roberts

University of Leeds / UK

19:30 - Conference dinner

Location: The Anniversary Drawing Room (2nd floor), Purdue Memorial Union (the next to the conference venue)



August 11-13, 2025
Purdue University, West Lafayette, IN, US

Wednesday, August 13, 2025

08:00-09:00 **Breakfast** (Room 218)

Oral Presentations: Session 3 (Room 214)

Chairs: Ankur Kapil, Veranova / USA

Linda J Broadbelt, Northwestern University / USA

09:00-09:20 Accelerating Crystallization Process Design through Bayesian Optimization

Ábrahám Papp, Diána Wiederschitz, Edith Alice Kovács, Botond Szilagyi

Budapest University of Technology and Economics / Hungary

09:20-09:40 Optimizing coagulation-flocculation: A Population Balance model

Diogo Abreu, David Fernandes del Pozo, Ingmar Nopens, Pablo Gallo

Ghent University / Belgium

09:40-10:00 Predictive population balance modeling of pharmaceutical tablet

disintegration and dissolution behavior

Meng-Hua Yang, Francesco Rossi, Xinle Zhang, Gintaras V. Reklaitis, Zoltan K

Nagy

Purdue University / USA

10:00-10:30 Coffee Break and Poster Session (Room 218; see pages 6-7)

Oral Presentations: Session 4 (Room 214)

Chairs: Manish Kelkar, AbbVie / USA

Patrick D Shipman, The University of Arizona / USA

10:30-10:50 Two-dimensional population balance modeling (2D-PBM) and machine

learning-based multi-objective optimization for the cooling crystallization

process of Resveratrol

Álmos Orosz, Monika O. Neal, Botond Szilágyi, Zoltán K. Nagy

Purdue University / USA; Budapest University of Technology and Economics /

Hungary

10:50-11:10 A systematic methodology for robust identification of PBM for emulsion

droplet breakage

Kristy Touma, Noureddine Lebaz, Gürkan Sin, Nida Sheibat-Othman

Universite Claude Bernard Lyon / France

11:10-11:30 Population balance modeling-based design of crystallization systems under

parametric and process uncertainties

<u>Yash Barhate</u>, Zoltan Nagy Purdue University / USA

11:30-11:45 - Closing remarks (Room 214)

11:45-12:45 *Lunch Break* (Room 218: only for workshop participants)



August 11-13, 2025 Purdue University, West Lafayette, IN, US

13:00-16:00 Parallel workshops

Location: Forney Hall of Chemical Engineering, 480 Stadium Mall Drive, West Lafayette, IN 47907

- Workshop 1: Modeling and design of industrial crystallization systems using CrySiV (FRNY G 124)
- Workshop 2: Sustainable Pharmaceutical Manufacturing (FRNY B 124)

Poster presentations

ID	Title
01	Digital process design using optimization for agglomeration control in pharmaceutical crystallization Yung-Shun Kang, Hemalatha Kilari, Zoltan K. Nagy Purdue University / USA
02	A systematic framework for iterative model-based experimental design of batch and continuous crystallization systems Hemalatha Kilari, Yash Barhate, Yung-Shun Kang, Zoltan K. Nagy Purdue University / USA
03	Model-based experimental design framework for developing population balance models for continuous crystallization systems Yash Barhate, Hemalatha Kilari, Zoltan K. Nagy Purdue University / USA
04	A CFD-PBM approach to simulate liquid-liquid hydrocyclones João P.S. Oliveira, Tania S. Klein, Ricardo A. Medronho, <u>Fabio P. Santos</u> Federal University of Rio de Janeiro / Brazil
05	Parameters estimation in population balance models based on limited sets of experimental measurements Mauro Davanzo, Emanuele Tomba, Enrico Carlassare, Riccardo Motterle, Pierantonio Facco, Massimiliano Barolo, Zoltan Nagy, Fabrizio Bezzo University of Padova / Italy
06	Ensemble methods applied to 2D crystallization modeling <u>Luisdomingo Guzman Julio</u> , Nathaniel A. Michael Purdue University / USA
07	A systematic methodology for robust identification of PBM for emulsion droplet breakage Kristy Touma, Noureddine Lebaz, Gürkan Sin, Nida Sheibat-Othman Universite Claude Bernard Lyon / France
08	Modeling Crystallization Systems: Population Balance Approaches for Structurally Similar Impurities with Kinetically Controlled Impurity Incorporation Mechanisms Katherine L. Young, Rojan Parvaresh, Baggie W. Nyande, Helen Yao, Chris Davey, Samir Diab, Zoltan Nagy Purdue University / USA
09	A continuous population balance model of macrophage polarization with cybernetic regulation Prateek Gupta , Mano Maurya, Shakti Gupta, Doraiswami Ramkrishna Purdue University / USA



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- 10 Physics-informed neural networks for population balance modeling of macrophage polarization Elliot David McDonald, Prateek Gupta, Mano Maurya, Shakti Gupta, Ananth Grama, Doraiswami Ramkrishna
 Purdue University / USA
- Optimization of Calibration Parameters for DEM Modeling of Mung Bean (Vigna radiata L.)
 Grains

Rishi Sachan, Kingsly Ambrose Indian Institute of Technology / India; Purdue University / USA

- Two-dimensional population balance modeling (2D-PBM) and machine learning-based multiobjective optimization for the cooling crystallization process of Resveratrol Álmos Orosz, <u>Monika O. Neal</u>, Rekha Rao, Christine Roberts, Botond Szilágyi, Zoltán K. Nagy Purdue University / USA
- Double Emulsions Preparation in Stirred Tank: Modeling the Release Kinetics through Population Balance Framework Ranim Chakleh, Noureddine Lebaz, Nida Sheibat-Othman Universite Claude Bernard Lyon / France
- 14 Toward Personalized Product and Treatment Design: Integrated Digital Design of Efficacy and Optimal Treatment of Oral Drug
 Meng-Hua Yang, Francesco Rossi, Gintaras V. Reklaitis, Zoltan K Nagy
 Purdue University / USA
- Integrated population balance modeling in end-to-end continuous pharmaceutical manufacturing: from crystallization to dissolution
 Kensaku Matsunami, Mohammad Shahab, Gintaras V. Reklaitis, Zoltan K. Nagy
 Purdue University / USA
- Analytical solution to the discretized population balance equation for pure breakage with application to kernel identification
 Prem K.R. Podupu, Vamsi V. Gande, Ragavendra Hari, Akshay Korde, Manish S. Kelkar, Nandkishor K. Nere, Meenesh R. Singh
 University of Illinois Chicago; AbbVie / USA
- 17 Reactive Crystallization Modeling for Process Integration Simulation Zachary Hillman, Zoltan Nagy Purdue University / USA
- 18 CrystMechNet: Al-Powered Crystallization Mechanism Classification Bocheng Ouyang, Yash Barhate, Zoltan Nagy Purdue University / USA

Sponsors

- Blaze Metrics
- Davidson School of Chemical Engineering



West Lafayette Campus BUILDING NAMES AND ABBREVIATIONS

SUMMER 2016

	Asian American and Asian Resource and Cultural Center (STEW) G, H7	LMST	Laboratory Materials Storage Trailer H11		Visitor Information Center (now the Welcome Center —
ABE	Agricultural and Biological Engineering F9	LSA	Life Science Animal Building F8		east end of PMU) H7
ADDL	Animal Disease Diagnostic Laboratory G10	LSPS	Life Science Plant and Soils Laboratory F8	VLAB	Veterinary Laboratory Animal Building G10
ADM	ADM Agricultural Innovation Center E11	LSR	Life Science Ranges (Greenhouse and Service Building) F8, 9	VMIF	Veterinary Medicine Isolation Facility G10
AERO	Aerospace Science Laboratory C11	LWSN	Lawson (Richard and Patricia) Computer Science Building F6	VOIN	Voinoff (Samuel) Golf Pavilion C1
AGAD Ahf	Agricultural Administration Building G8 Animal Holding Facility G10	LYLE Lynn	Lyles-Porter Hall F9 Lynn (Charles J.) Hall of Veterinary Medicine G10	VPRB	Veterinary Pathobiology Research Building F, G9, 10
AQUA	Boilermaker Aquatic Center D6	MACK	Mackey (Guy J.) Arena F, G4	VPTH	Veterinary Pathology Building G9
AR	Armory G6	MANN	Mann (Gerald D. and Edna E.) Hall E8	WADE	Wade (Walter W.) Utility Plant H11
ARMS	Armstrong (Neil) Hall of Engineering G5	MATH	Mathematical Sciences Building G7	WANG	Wang (Seng-Liang) Hall H5
ASB	Airport Service Building (Shop Services) A11-12	ME	Mechanical Engineering Building G, H6		Welcome Center (see PMU) H7
ASTL	Animal Sciences Teaching Laboratory E8	MGL	Michael Golden Engineering Laboratories	WEST	Westwood (President's Home) A5, 6
BALY	Bailey (Ralph and Bettye) Hall H6-7		and Shops H6	WGLR	Women's Golf Locker Room D1
BCC	Black Cultural Center F6	MJIS	Jischke (Martin C.) Hall of Biomedical Engineering E9	WSLR	Whistler (Roy L.) Hall of Agricultural Research G8
BCHM	Biochemistry Building F8	MMDC	Materials Management and Distribution Center F11	WTHR	Wetherill (Richard Benbridge) Laboratory of Chemistry G, H7 Young (Ernest C.) Hall H8
BIND BRES	Bindley Bioscience Center D8 Brees (Drew and Brittany) Student-Athlete Academic Center F3	MMS1 MOLL	Materials Management Storage Building 1 F12 Mollenkopf Athletic Center F3	YONG † ZL1	Combustion Research Laboratory
BRK	Birck Nanotechnology Center D8	MRGN	Morgan (Burton D.) Center for Entrepreneurship E8	† ZL2	Gas Dynamics Research Laboratory
BRNG	Beering (Steven C.) Hall of Liberal Arts and Education F, G7	MRRT	Marriott Hall F7,8	† ZL3	High Pressure Research Laboratory
BRWN	Brown (Herbert C.) Laboratory of Chemistry H7	MSEE	Materials and Electrical Engineering Building H5, 6	† ZL4	Propulsion Research Laboratory
BTV	Boiler Television Building E3	MTHW	Matthews Hall F7, 8	† ZL5	Turbomachinery Fluid Dynamics Laboratory
	Car/Van Rentals and Charter Bus (MMDC) F11	NAECC	Native American Educational and Cultural Center (South Campus		
† CHAF	Chaffee Hall A9		Courts, Building B) H10	Residence	& Dining Facilities
CL50	Class of 1950 Lecture Hall G7	NISW	Niswonger Aviation Technology Building B11	CARY	Cary (Franklin Levering) Quadrangle F4
COMP CREC	Composites Laboratory C11 Córdova (France A.) Recreational Sports Center D, E6	NLSN	Nelson (Philip E.) Hall of Food Science G9	* DUHM	Duhme (Ophelia) Residence Hall E7
‡ DANL	Daniel (William H.) Turfgrass Research Center B1	NUCL OLMN	Nuclear Engineering Building H6 Ollman (Melvin L.) Golfcart Barn C1	ERHT	Earhart (Amelia) Residence Hall D7
DAUC	Dauch (Dick and Sandy) Alumni Center H9	OLMIN	Parking Facilities (Purdue West, Building D) B7	FORD	Ford (Fred and Mary) Dining Court F4
DLR	Hall for Discovery and Learning Research E9	PAO	Pao (Yue-Kong) Hall of Visual and	FST	First Street Towers D7
DMNT	DeMent (Clayton W.) Fire Station D6		Performing Arts H8	HARR	Harrison (Benjamin) Residence Hall C7
DOYL	Doyle (Leo Philip) Laboratory G10	PFEN	Pfendler (David C.) Hall of Agriculture G8	HAWK HCRN	Hawkins (George A.) Hall H8 Honors College and Residences North E7
DRUG	Drug Discovery F9	PFSB	Physical Facilities Service Building F12	HCRS	Honors College and Residences South E7
DYE	Pete Dye Clubhouse C1		Pharmacy (Purdue University Retail Pharmacy - RHPH) F, G5	HILL	Hillenbrand Residence Hall C7
EE	Electrical Engineering Building H6	PHYS	Physics Building G5	HLTP	Hilltop Apartments E3
EEL Ehsa	Entomology Environmental Laboratory G8 Equine Health Sciences Annex G10	PJIS PMU	Jischke (Patty) Early Care and Education Center C8	MCUT	McCutcheon (John T.) Residence Hall C7
EHSB	Equine Health Sciences Building G10	FINIU	Purdue Memorial Union (includes Welcome Center) H7	MRDH	Meredith (Virginia C.) Residence Hall D7
ELLT	Elliott (Edward C.) Hall of Music G6	PMUC	Purdue Memorial Union Club H7	OWEN	Owen (Richard) Residence Hall E4
EXPT	Exponent Building H6	POAN	Poultry Science Annex E8	PVAB	Purdue Village Administration Building D9
FOPN	Flight Operations Building B11	POTR	Potter (A.A.) Engineering Center H6	PVCC PVIL	Purdue Village Community Center C8 Purdue Village B, C, D8, 9, 10
FORS	Forestry Building G8	POUL	Poultry Science Building E8	PVIL	Purdue Village Preschool C9
FPRD	Forest Products Building G8	PRCE	Peirce Hall G7	* SHLY	Shealy (Frances M.) Residence Hall E7
FREH	Freehafer (Lytle J.) Hall of Administrative	PRSV	Printing Services Facility F11	SHRV	Shreve (Eleanor B.) Residence Hall D6, 7
FDMV	Services H10	PSYC	Psychological Sciences Building G6, 7	SMLY	Smalley (John C.) Center for Housing and Food Services
FRNY FWLR	Forney Hall of Chemical Engineering G5 Fowler (Harriet O. and James M., Jr.)	PUSH	Purdue University Student Health Center F, G5		Administration D6 , 7
FWLK	Memorial House E7	PVAB	Purdue Village Administration Building D9	TARK	Tarkington (Newton Booth)
GCMB	Golf Course Maintenance Barn C2	PVCC	Purdue Village Community Center C8		Residence Hall E5
GMF	Grounds Maintenance Facility F11	PWD	Parking Facilities B7	TSS * VAWT	Third Street Suites E6 Vawter (Everett B.) Residence Hall E6
	The Graduate School (Young Hall - first floor) H8	RAIL	American Railway Building H6	* WARN	Warren (Martha E. and Eugene K.) Residence Hall E7
	Grand Prix Track (see Northwest Athletic Complex Inset)	RAWL	Rawls (Jerry S.) Hall H8	WDCT	Wiley Dining Court E6
GRIS	Grissom Hall H7	REC	Recitation Building G7	WILY	Wiley (Harvey W.) Residence Hall E5, 6
GRS	Grounds Service Building E8	RHPH	Heine (Robert E.) Pharmacy Building F, G5	* W00D	Wood (Elizabeth G. and William R.)
GSMB HAAS	Golf Storage Maintenance Building C2 Haas (Felix) Hall G7	SC SCCA-E	Stanley Coulter Hall G7		Residence Hall E7
HAMP	Hampton (Delon and Elizabeth) Hall of Civil Engineering G5	SCHL	South Campus Courts, Buildings A-E G, H9, 10 Schleman (Helen B.) Hall of Student Services G6		
HANS	Hansen (Arthur G.) Life Sciences Research	SCHO	Global Policy Research Institute (Schowe House) F1	Northwest	t Athletic Complex (C2-3 inset)
	Building F8, 9	SCPA	Slayter Center of Performing Arts D4	BBCH	Purdue Baseball Clubhouse
HEAV	Heavilon Hall H7	‡ SIML	Holleman-Niswonger Simulator Center	BBPB	Purdue Baseball Press Box
HERL	Herrick Acoustics E8	SMLY	Smalley (John C.) Center for Housing and Food Services	SBCH	Purdue Softball Clubhouse
HGR4-6	Hangars, Numbers 4 through 6 A11,12		Administration D6 , 7	SBPB	Purdue Softball Press Box
HGRH	Horticultural Greenhouse G9	SMTH	Smith Hall F8	SCHW	Schwartz (Dennis J. and Mary Lou) Tennis Center
HIKS	Hicks (John W.) Undergraduate Library G, H7, 8	SOIL	Soil Erosion Laboratory, National E9	SOCC	Purdue Women's Soccer Building
HLAB	Herrick Laboratories E8-9	SPUR SSOF	Spurgeon (Tom) Golf Training Center C1 State Street Office Facility A8	p	
HMMT	Hazardous Materials Management Trailer H11	STDM	Ross-Ade Stadium (includes Ross-Ade	Parking Ga	
HNLY	Hanley (Bill and Sally) Hall C7	515111	Pavilion [RAP]) F3	, ,	ages are for permitted parking during weekdays. Parking becomes
HOCK	Hockmeyer (Wayne T. and Mary T.) Hall of Structural Biology E9	STEW	Stewart Center G , H7		en to the public on most nights and weekends. The Grant Street G) has paid visitor parking at all times. Visitors may purchase day
HORT	Horticulture Building G9	STON	Stone (Winthrop E.) Hall G7, 8	, ,	as paid visitor parking at an times. Visitors may purchase day Insses in advance at www.purdue.edu/parking. Visitor passes
HOVD	Hovde (Frederick L.) Hall of		Student Health Center (see PUSH) F, G5		lid in the Grant Street garage.
	Administration G6	TEL	Telecommunications Building F7		
JNSN	Johnson (Helen R.) Hall of Nursing G5, 6	TERM	Terminal Building B11	PGG	Parking Garage, Grant Street H, 17
KCTR	Krannert Center for Executive Education and Research H8	TERY	Terry (Oliver P.) House E8, 9	PGH	Parking Garage, Harrison Street F9
KNOY	Knoy (Maurice G.) Hall of Technology H6	TH1-6 TREC	Tee-Hangars 1 through 6 A11 Turf Recreation Exercise Center D6	PGM	Parking Garage, Marsteller Street G, H8
KRAN	Krannert Building H8	TSWF	Transportation Service Wash Facility G12	PGMD	Parking Garage, McCutcheon Drive C6, 7
KRCH	Krach Leadership Center E6	UNIV	University Hall G7	Perm	(residence hall permit required)
LAMB	Lambert (Ward L.) Fieldhouse and Gymnasium F, G4	UPOB	Utility Plant Office Building H11	PGNW PGU	Parking Garage, Northwestern Avenue H5 Parking Garage, University Street F6, 7
LCC	Latino Cultural Center (600 Russell St.) F5	UPOF	Utility Plant Office Facility H10	PGU	Parking Garage, Wood Street H8
	Library, Main (see HIKS) G, H7, 8	UPSB	Utility Plant Storage Building G11	. 411	. a.i.i.ig datage, mood street no
LILY	Lilly Hall of Life Sciences F8	VA1	Veterinary Animal Isolation Building 1 G10	* Wind	dsor Residence Halls
LMSB	Laboratory Materials Storage Building H11	VA2	Veterinary Animal Isolation Building 2 G10		of Maurice J. Zucrow Laboratories
		VCPR	Veterinary Center for Paralysis Research G10	± Ruile	dings not appearing on map

Veterinary Center for Paralysis Research **G10**

[†] Part of Maurice J. Zucrow Laboratories

[#] Buildings not appearing on map

