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# Kanishka Bhunia

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## CONTACT INFORMATION

Assistant Professor  
Food Process Engineering  
Department of Agricultural and Food Engineering  
IIT Kharagpur  
Kharagpur, India 721302

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## EXPERIENCE

Post-doctoral Research Associate  
Advisor: Prof. Ashim K. Datta  
Cornell University, Ithaca, New York

December 2017 – May 2018

Post-doctoral Research Associate  
Advisor: Prof. Shyam S. Sablani  
Washington State University, Pullman, Washington

May 2016 – November 2017

## EDUCATION

**Ph.D.** in Food Engineering  
Advisor: Prof. Shyam S. Sablani  
**Washington State University**  
Pullman, WA, USA

GPA 3.86/4.0

August 2011 – May 2016

**M. Tech.** in Dairy and Food Engineering  
Advisor: Prof. Ashis K. Datta  
**Indian Institute of Technology**, Kharagpur  
West Bengal, India

GPA 9.37/10.0

July 2009 – May 2011

**B. Tech.** in Agricultural Engineering  
Advisor: Prof. Subrata Karmakar  
**Bidhan Chandra Krishi Viswavidyalaya**, Mohanpur  
West Bengal, India

GPA 8.02/10.0

July 2005 – May 2009

## AWARDS AND ACHIEVEMENTS

- Second place in Food Packaging Division competition at IFT Conference, 2016
- Puget Sound Institute of Food Technologist (PSIFT) Scholastic Achievement Award, 2015
- *Daniel-Siegel Memorial* Scholarship Award by TAPPI-PLACE, 2014
- Finalist in Food Packaging division competition at IFT Conference, 2014
- Puget Sound Institute of Food Technologist (PSIFT) Travel Award, 2013, 2014
- First position in Lewis-Clark IFT competition 2012
- Graduate and Professional Student Association (WSU) Travel Award, 2012
- First position, Biological Systems Engineering Graduate Poster Competitions, WSU
- All India Rank 11 in GATE in 2009, percentile 98.33
- Ministry of Human Resource Development (India) scholarship in PG study
- Institute Merit Scholarship in Undergraduate

## GRANT WRITTING

A ‘Retro-design’ approach for developing suitable wall materials for Food Powders

## TECHNICAL SKILLS

**Softwares:** COMSOL, SAS, R-statistical software, Matlab, AutoCAD  
**Instruments:** Oxtran, Permatran, Differential Scanning calorimetry (DSC), Scanning Electron

Microscopy (SEM), Transmission Electron Microscopy (TEM), Fourier transform Infrared Spectroscopy (FTIR), X-ray Diffractometer (XRD), Split post dielectric resonance (SPDR), Atomic Force Microscopy (AFM), Ultrasound

TEACHING  
EXPERIENCE

**Cornell University**, Ithaca, NY, USA December 2017 – Present  
Developing simulation-based teaching modules for UG students

**Washington State University**, Pullman, WA, USA May 2016 – November 2017  
Courses (Graduate level):

- Advanced Food Packaging (BSYSE 583)
- Advanced Physical Properties of Foods (BSYSE 581)

RESEARCH  
INTEREST

Functional food packaging for advanced food processing technologies  
Smart packaging  
Food safety engineering  
Food process modeling and simulation  
Food stability and shelf life analysis  
Food material science engineering  
Refrigerated and Frozen Foods

TEACHING  
INTEREST

Food Process Engineering  
Food Packaging  
Thermal Processing of Foods  
Food Process Modeling  
Food Material Science Engineering

RESPONSIBILITIES

**President**, TAPPI-PLACE Student Chapter of Washington State University  
**Chair**, Social outreach committee, 2013-14 (Food Engineering Club, WSU)  
**Chair**, Public Relation Committee, 2012-13, 2015-16 (Food Engineering Club, WSU)  
**President**, Students Organization and Union, Undergraduate study  
**Peer Reviewer** of *Journal of Food Science*  
**Peer Reviewer** of *Drying Technology*

PROFESSIONAL  
MEMBERSHIP

Institute of Food Technologists (IFT)  
American Society of Agricultural and Biological Engineers (ASABE)  
TAPPI-PLACE

PROFESSIONAL  
TRAINING

**Trainee Engineer**, Summer 2007. Farm Machinery and operations, Northern Region Farm Machinery Training and Testing Institute, Government of India, India  
**Trainee Engineer**, Summer 2008. Milk Processing and handling, Central Dairy Farm, Government of India

CONFERENCES/  
PRESENTATIONS

**Invited presentation**: ‘Advanced Polymer Packaging for Novel Food Processing Technologies’  
Bengal Science Lecture Series  
Department of Food Technology and Biochemical Engineering, Jadavpur University  
Kolkata, India, March, 2017  
**Invited presentation**: Technical Association of Pulp and Paper Industry-Polymers Laminations Adhesives Coatings Extrusions (TAPPI-PLACE)  
Annual Meeting, Texas, USA 2016  
**Poster**: Institute of Food Technologists (IFT) Annual Conference  
Chicago, USA 2016

**Poster:** IFT Annual Conference  
New Orleans, USA 2014  
**Poster:** LC-IFT meeting, USA 2014  
**Oral presentation:** ASABE Annual Conference  
Kansas city, Missouri, USA 2013  
**Poster:** IFT Annual Conference  
Chicago, USA 2013  
**Poster:** TAPPI-PLACE Annual Meeting  
Seattle, USA 2012  
**Poster:** IFT Annual Conference  
Las Vegas, USA 2012  
**Poster:** LC-IFT Meeting, USA 2011

SHORT COURSES/  
WORKSHOPS/  
SEMINARS

**HACCP-FSMA** Hazard Analysis at Critical Control Point and Food Safety Modernization Act, Washington State University, 2015  
**Grant Writing**, Washington State University, January, 2015  
**Industrial workshop:** Microwave assisted thermal Sterilization (MATS) boot camp, WSU 2015

ACTIVITIES

Member of a team that has been selected to present flexible packaging design idea in TAPPI-PLACE meeting, May 6<sup>th</sup> – 9<sup>th</sup>, 2012  
Non-percussion instrument Tabla (Indian Drum) performer

PUBLICATIONS

**Articles:**

1. Kumar P.K., **Bhunia, K.**, Tang, J., Rasco, B., Takhar, P.S., Sablani, S. S. (2018). Thermal transition and thermo-physical properties of potato (*Solanum tuberosum* L.) var. Russet brown, *Journal of Food Measurement and Characterization* (Accepted)
2. Zhang, H.C., **Bhunia, K.**, Munoz, N., Li, L., Dolgovskij, M., Rasco, B., Tang, J., Sablani, S. S. (2017). Linking morphology changes to barrier properties of polymeric packaging for microwave-assisted thermal sterilized food, *Journal of Applied Polymer Science* 45481 (1-10)
3. Munoz, N., **Bhunia, K.**, Zhang, H., Barbosa-Cnovas, G.V., Tang, J., Sablani, S.S. (2017). Headspace oxygen as a hurdle to improve the safety of in-pack pasteurized chilled food during storage at different temperatures, *International Journal of Food Microbiology* 253: 29-35.
4. Bajaj, P.R., **Bhunia, K.**, Kleiner, L., Joyner, H.S., Smith, D., Ganjyal, G., Sablani S.S., (2017). Improving functional properties of pea protein isolate for microencapsulation of flaxseed oil. *Journal of Microencapsulation* 1-36.
5. **Bhunia, K.**, Zhang, H.C., Liu, F., Rasco, B., Tang, J., Sablani, S.S. (2016). Morphological changes in multilayer polymeric films induced after microwave-assisted pasteurization. *Innovative Food Science and Emerging Technologies* 38: 124-130.
6. **Bhunia, K.**, Sablani, S. S., Tang, J., Rasco, B. (2016). Non-invasive measurement of oxygen diffusion in model foods. *Food Research International* 89: 161-168.
7. **Bhunia, K.**, Ovissipour, M., Rasco, B., Tang, J., Sablani, S. S., (2016). Oxidation-reduction potential and lipid oxidation in ready-to-eat blue mussels in red sauce: Criteria for Package Design. *Journal of the Science Food and Agriculture* 97: 324-332.
8. **Bhunia, K.**, Sharma, R.K., Datta, A.K., (2016). Computational fluid dynamics (CFD) modeling of grain-water suspensions in tube. *Agricultural Engineering International: CIGR Journal* 8: 269283
9. Zhang, H.C., **Bhunia, K.**, Kuang, P., Tang, J., Rasco, B., Mattinson, D.S., Sablani, S.S. (2016). Effects of Oxygen and Water Vapor Transmission Rates of Polymeric Pouches on Oxidative Changes of Microwave-Sterilized Mashed Potato. *Food and Bioprocess Technology* 9(2), 341-351.

10. Syamaladevi, R.M., Adhikari, A., Lupien, S.L., Dugan, F., **Bhunia, K.**, Dhingra, A., Sablani, S.S. (2015). Ultraviolet-C light inactivation of *Penicillium expansum* on fruit surfaces. *Food Control* 50: 297303.
11. Dhawan, S., Sablani, S.S., Tang, J., Barbosa-Canovas, G.V., Ullman, J., **Bhunia, K.** (2013). Silicon Migration from High Barrier Coated Multilayer Polymeric Films to Selected Food Simulants after Microwave Processing Treatments. *Packaging Technology and Science*
12. Syamaladevi, R.M., Lupien, S.L., **Bhunia, K.**, Sablani, S. S., Dugan, F., Rasco, B., Killinger, K., Dhingra, A., Ross, C. (2013). UV-C Light Inactivation of *Penicillium expansum* on Pear Surfaces: Influence on Physicochemical and Sensory Quality. *Post Harvest Biology and Technology* 87: 2732.
13. **Bhunia, K.**, Sablani, S. S., Tang, J., Rasco, B. (2013). Migration of Chemical Compounds from Packaging Polymers during Microwave, Conventional Heat Treatment, and storage. *Comprehensive Reviews in Food Science and Food Safety* 12(5): 523–545.
14. **Bhunia, K.**, Dhawan, S., Sablani, S.S. (2012). Modeling the Oxygen Diffusion of Nanocomposite-based Food Packaging Films. *Journal of Food Science* 77(7): N29–N38.

#### Book Chapters:

1. Gas Barrier Packaging by **Kanishka Bhunia**, Hongchao Zhang, Shyam S. Sablani In: *Reference Module in Food Science* 1<sup>st</sup> Edition, 2016, 1–11  
(link: <http://dx.doi.org/10.1016/B978-0-08-100596-5.03219-4>)
2. Packaging Technology for Microwave Sterilization by Hongchao Zhang, **Kanishka Bhunia**, Shyam S. Sablani In: *Packaging for Nonthermal Processing of Food* 1<sup>st</sup> Edition 2018, editors: Melvin Pascall, Jung H. Han (link: <https://www.wiley.com/en-us/Packaging+for+Nonthermal+Processing+of+Food%2C+2nd+Edition-p-9781119126850>)
3. Food-Packaging Interaction by **Kanishka Bhunia**, Shyam S. Sablani, Mohammad Shafiur Rahman (submitted) In: *Handbook of Food Preservation* (3<sup>rd</sup> edition) editor: Mohammad Shafiur Rahman

CONFERENCE  
PROCEEDINGS

1. **Bhunia, K.**, Datta, A. K. (2012). Computational heat transfer modeling of rice-water suspension in tube. Proceedings of CHT-12. ICHMT *International Symposium on Advances in Computational Heat Transfer*. ICHMT Digital library online