

SAJID ALAVI

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Education

- **Doctor of Philosophy, 2002** **Cornell University, Ithaca, NY**
Food Science/ Food Engineering
Minors: Chem. Eng.; Operations Research & Ind. Eng.
- **Master of Science, 1997** **Pennsylvania State University, State College, PA**
Agricultural & Biological Engineering
- **Bachelor of Science, 1995** **Indian Institute of Technology, Kharagpur**
Agricultural Engineering

Professional Experience

- **Professor, 2013 – present**
Dept. of Grain Science and Industry, Kansas State University
10% teaching, 90% research appointment; Research Areas – Food engineering; Extrusion processing of food and feed materials; Food structure-texture relationships; Value-added utilization of agricultural commodities
- **Associate Professor, 2008 – 2013**
Dept. of Grain Science and Industry, Kansas State University
- **Assistant Professor, 2002 – 2008**
Dept. of Grain Science and Industry, Kansas State University
- **Post-Doctoral Associate, 2002**
Dept. of Food Science, Cornell University

Teaching and Student Advising

- GRSC 820 Advanced Extrusion Processing; GRSC 620 Extrusion in Food and Feed Industries
- GRSC 790/ 481/891 Agriculture & Food Processing in India, Southern Africa, Brazil & Taiwan (Study Abroad – 2010, 2013, 2017 & 2020)
- GRSC 499/ 910 Professional & Product Development in Industry Settings
- GRSC 645/ 646 Pet Food Processing
- ATM 540/ 541 Introduction to Food Engineering and Laboratory.
- Student Advising. Kansas State. Major advisor for 7 Ph.D. students and 13 M.S. students in Grain Science and Food Science. Undergraduate advisor for 19 Grain Science students.
- Student Clubs. Faculty advisor for the Grain Science food product development team (2004-07); Faculty advisor for the K.S.U. Indian Student Association (2008-11).

Memberships and Honors

- AACC International. 2010 Young Research Scientist Award.
- Institute of Food Technologists (IFT); Food Engineering Division Member-at-Large (2009-13)
- AACC International (AACCI); Scientific Initiative Chair for Engineering, Processing and Rheology (2008-09); Engineering & Processing Division Chair (2009-10), Chair-Elect (2008-09), Secretary/ Treasurer (2007-08); Rheology Division Chair (2006-07), Chair-Elect (2005-06), Secretary/ Treasurer (2004-05)
- Honor Societies - Gamma Sigma Delta (Agriculture) and Alpha Epsilon (Agricultural Engineering)

Summary of Professional Accomplishments

Dr. Sajid Alavi's KSU extrusion lab is an internationally recognized program with a far-reaching impact in research, teaching, industry, service and international activities that are summarized below.

Service:

I have taken a leadership role at the University, College and Departmental levels in service related to the various initiatives. These include serving in the last 6 years as an elected member and representing the College of Agriculture in the University Graduate Council for two terms, from 2010 till 2016; as an Advisory Board Member for the University Center for Engagement and Community Development; on the Academic Standards Committee of College of Agriculture; as a member of faculty search committees for tenure-track positions including feed (Dr. Chad Paulk) and bioprocessing/ fermentation (Dr. Yi Zheng); and as coordinator of the departmental seminar series. I also provided leadership roles in several college and university-level high impact international activities and outcomes such as visits by College of Agriculture Dean Dr. John Floros to India in April 2013 (in continuation with an initiative coordinated with Provost Dr. April Mason) and coordination and implementation of the successful 2+2 dual degree program with Punjab Ag University that is the topmost agricultural university in India. Four students from India were recruited to the Bakery Science & Management degree program through the last initiative. I have provided leadership outside the university as well. I served as Board Member of the AACC International - Cereals and Grains Association Foundation and also in several other official roles in that organization. I collaborated with the International Association for Cereal Science and Technology (ICCO in organizing a conference in Mexico City in 2018. I serve as adjunct professor in Maharana Pratap University of Agriculture & Technology in India and Bahir Dar University in Ethiopia.

Research:

My extensive research activities and collaborative work with other institutions of national and international repute have greatly strengthened the position of the extrusion lab as an internationally recognized program with far reaching impact. I have been involved in research projects with food, feed and industrial applications, focusing on key areas of - 1) extrusion process dynamics and characterization of micro-structure and structure-texture relationships using innovative tools such as non-invasive X-ray micro tomography and phase transition analysis, 2) use of sorghum and co-products in food, petfood and feed applications, 3) biopolymer interactions in high-fiber and fruit-based healthy snacks, 4) global food security, nutrition and food assistance applications, 5) cellulosic ethanol, 6) nano-composites, 7) pet food applications, and 8) plant-based meat applications. These projects include several on-campus faculty members from disciplines such as Grain Science, Food Science, Animal Science, Agronomy and Human Nutrition, and researchers from other institutions such as USDA-CGAHR, North Carolina State University, University of Tennessee, Cornell University, Sao Paulo State University (Brazil) and MG University (India). Overall 9 Ph.D. and 15 MS. level students have successfully completed their theses with me as major professor since 2002, and I have supervised six post-doctoral research associates. I have secured \$11.5 million dollars in extra-mural funding, more than 95% of which is from my efforts as the primary investigator. These include major federal grants from USDA-FAS, USDA-AFRI and USDA International Science and Education Program, and several other grants from industry partners and commodity organizations such as Kansas Wheat Commission, Kansas Soybean Commission, Kansas Sorghum Commission and United Sorghum Checkoff Program. I have published more than 100 peer-reviewed scientific manuscripts, books and book chapters/ articles. Approximately 150 research papers were presented at various professional and scientific meetings including the annual meetings of AACC International and Institute of Food Technologists. I also undertook a 5-month sabbatical (January- June 2012) at MG University (India) for exploring new frontiers in nanocomposites such as biomedical applications.

An important recognition of my research accomplishments was the prestigious 2010 Young Research Scientist Award from AACC International, formerly the American Association of Cereal

Chemists. The honor is presented to a scientist younger than 40 for contributions to basic and applied cereal science research. I have been asked to speak (approximately 40 invited presentations) at international forums in countries including U.S.A., Italy, South Africa, Brazil, India, Mozambique, Ethiopia and China. Several scientists, from countries such as Norway, Brazil, China, India, Jordan, Egypt and Mozambique, have visited the extrusion lab for collaborative research projects for periods up to a year. In 2011, I was an invited speaker for the prestigious Vernon Larson International Lecture, which is the longest-running lecture series at K-State involving presentations from faculty and individuals involved in major international activities. In the same year, I was honored by the Maharana Pratap University of Agriculture & Technology (India) with an adjunct professor appointment for my contributions to international collaboration. About 28 visiting scientists and exchange students from Norway, France, Argentina, Brazil, China, India, Jordan, Egypt, Nigeria, Ethiopia and Mozambique have spent time in my lab working on joint projects. Other measures of the impact and international recognition of my research include establishment of KSU as an important research hub for food aid and global value-added processing solutions, strategic innovation partnerships with major multi-nationals companies, interest shown by industry in nanocomposite technology developed in my lab, and widespread recognition and adoption in scientific and industry circles of flow-based characterization of material phase transition properties as a rapid testing tool and non-invasive imaging techniques for understanding process-structure-function relationships in foods products.

Teaching:

I have been involved in major departmental initiatives for internationalization and expansion of curriculum through a leadership role in development and teaching of several innovative courses in the last 10 years, including four study abroad courses focused on agriculture and food processing in India (Summer 2010), Southern Africa (Summer 2013), Brazil (Winter 2017) and Taiwan (Spring 2020), a course on global food security titled Agriculture and Food Processing in Developing Countries and an industry-sponsored course titled Professional and Product Development in Industry Settings. I continue to teach my core extrusion courses GRSC 620 and GRSC 820, and co-teach the pet food processing course GRSC 645. GRSC 620 Extrusion Processing in the Food and Feed Industry is an undergraduate level extrusion class with emphasis on introduction to extrusion technology and hands on laboratory exercises, and GRSC 820 Advanced Extrusion Processing is a graduate level extrusion class with group-based research projects as the main focus. Both classes have seen sustained or increased enrollment over the past several years. KSU is now among a select group of only 2-3 universities which have an extrusion-based teaching program, which strives to meet an ever-increasing industry demand for graduates trained in operations and R&D.

Outreach:

Under my supervision, the extrusion lab has become a major service provider to industrial clients. I have developed strong strategic partnerships with industry including Pepsico and Wenger Manufacturing. I have organized the 'KSU Extrusion Processing: Technology and Commercialization' short course every year since 2005. Through this internationally reputed course and similar offerings and workshops in other countries, such as India, Brazil and Mozambique, training and networking opportunities have been provided to about 1000 industry leaders from 30 countries spanning all six continents.

Refereed Publications (88)

- Ward, E.J., Suleria, H.A.R., Joseph, M., Chambers, E., Alavi, S., and Lindshield, B.L. 2020. Soy Protein is an efficacious alternative to whey protein in sorghum–soy fortified blended foods in rats. *Current Developments in Nutrition*, 4(8), nzaa115.
- Shukri, R., Alavi, S., Dogan, H., and Shi, Y-C. 2020. Properties of extruded cross-linked waxy maize starches and their effects on extruded oat flour. *Carbohydrate Polymers*. 253, <https://doi.org/10.1016/j.carbpol.2020.117259>.

- Webb, D., Blake, P., Donald, E., Funk, D., Plattner, B., and Alavi, S. 2020. Role of chickpea flour in texturization of extruded pea protein. *Journal of Food Science*. Accepted for publication October 2020.
- Xu, J., Manepalli, P.H., Zhu, L., Narayan-Sarathy, S., and Alavi, S. Morphological and performance characteristics of nanocomposites films based on poly(lactic acid) compounded with nanocrystalline cellulose and chitin whiskers using melt extrusion. *Cellulose*. Accepted with minor revisions. September 2019.
- Asemu, A.M., Alavi, S., Subramanyam, B., Delele, M.A., Kalsa, K.K., and Habtu, N.G. Effects of grain drying methods on post-harvest insect infestation and physicochemical characteristics of maize grain. *Journal of Food Process Engineering*. Recommended for publication October 2019.
- Asemu, A.M., Habtu, N.G., Delele, M.A., Subramanyam, B., and Alavi, S. Drying characteristics of maize grain in solar bubble dryer. *Journal of Food Process Engineering*. Accepted October 2019.
- Manepalli, P.H., and Alavi, S. 2019. Mathematical modeling of mechanical and barrier properties of poly(lactic acid)/poly(butylene adipate-co-terephthalate)/thermoplastic starch based nanocomposites. *Journal of Food Engineering*. 261, 60-65.
- Xu, J., Manepalli, P.H., Zhu, L., Narayan-Sarathy, S., and Alavi, S. 2019. Morphological, barrier and mechanical properties of films from poly (butylene succinate) reinforced with nanocrystalline cellulose and chitin whiskers using melt extrusion. *Journal of Polymer Research*. 26: 188.
- Delimont, N.M., Vahl, C.I., Kayanda, R., Msuya, W., Mulford, M., Alberghine, P., Praygod, G., Mngara, J., Alavi, S., and Lindshield, B.L. 2019. Complementary feeding of sorghum-based and corn-based fortified blended foods results in similar iron, vitamin A and anthropometric outcomes in the MFFAPP Tanzania efficacy study. *Current Developments in Nutrition*, 3(6), nzz027.
- Chambers, E., Maughan, C., Padmanabhan, N., Alavi, S., and Adedeji, A. 2019. Sensory Analysis of 20% Solids Fortified Blended Porridge. *British Food Journal*. 21(2), 633-64.
- Manepalli, P.H., Mathew, J.M., and Alavi, S. 2019. Stochastic modeling of expansion of starchy melts during extrusion. *J. Food Engineering*. 245: 57-64.
- Siva Shankar, A., Satyanarayana, C.V.V., Alavi, S., Edukondalu, L., Joseph, J., and Lakshmipathy. R. 2018. Study on Cereal-Legume Based Complementary Foods for Infants. *International Journal of Current Microbiology and Applied Sciences*. 7(8): 3310-3317.
- Fiorentino, N.M., Kimmel, K.A., Suleria, H.A.R, Joseph, M., Alavi, S., Beyer, R.S., and Lindshield, B.L. 2018. Novel formulated fortified blended foods result in improved protein efficiency and hepatic iron concentrations compared to CSB+ in broiler chickens. *Current Developments in Nutrition*. Accepted September 2018. <https://doi.org/10.1093/cdn/nzy073>
- Chanadang, S., Chambers, E., Alavi, S., Kayanda, R., and Msuya, W. 2018. Novel fortified blended foods: Preference testing with infants and young children in Tanzania and descriptive sensory analysis. *J. Food Science*. 83: 2343-2350.
- Alvarenga, I., Ou, Z., Alavi, S., Thiele, S., and Aldrich, C. 2018. Effects of milling sorghum into fractions on yield, nutrient composition, and their performance in extrusion of dog food. *Journal of Cereal Science*. Accepted May 2018.
- Penugonda, K., Fiorentino, N., Alavi, S., and Lindshield, B.L. 2018. Bioavailable iron and vitamin A in newly formulated, extruded corn, soybean, sorghum and cowpea fortified-blended foods in the in-vitro digestion/Caco-2 cell mode. *Current Developments in Nutrition*. Accepted April 2018.
- Guo, Q., Joseph, M., Setia, R., Vikhona, H., Sharma, K., and Alavi, S. 2018. Extruded corn soy blends: Physicochemical and molecular characterization. *Journal of Cereal Science*. 79: 486-493.
- Manepalli, P.H., Dogan, H., Mathew, J.M., and Alavi, S. 2017. Mathematical modeling of flow behavior and cell structure formation during extrusion of starchy melts. *Journal of Food Engineering*, 198, 7-16.
- Zhu, L., Adedeji, A.A., and Alavi, S. 2017. Effect of germination and extrusion on physicochemical properties and nutritional qualities of extrudates and tortilla from wheat. *Journal of Food Science*. *Journal of Food Science*, 82(8), 1867-1875.

- Delimont, N.M., Chanadang, S., Joseph, M.V., Rockler, B.E., Guo, Q., Regier, G.K., Mulford, M.R., Kayanda, R., Range, M., Mziray, Z., Jonas, A., Mugyabuso, J., Msuya, W., Lilja, N.K., Procter, S.B., Chambers, E., Alavi, S., and Lindshield, B.L. 2017. Newly formulated, extruded fortified-blended foods for food aid: The MFFAPP Tanzania field trial protocol. *Current Developments in Nutrition*, 1(5), e000315.
- Bell, B., Adhikari, K., Chambers, E., Alavi, S., King, S., and Haub, M. 2017. Spices in a product affect emotions: A study with an extruded snack product. *Foods* 2017, 6(8), 70; doi:10.3390/foods6080070.
- Sharma, C., Manepalli, P.H., Thatte, A., Thomas, S., Kalarikkal, N., and Alavi, S. 2017. Biodegradable starch/PVOH/laponite RD-based bionanocomposite films coated with graphene oxide: Preparation and performance characterization for food packaging applications. *Colloid and Polymer Science*, 295 (9), 1695-1708.
- Delimont, N.M., Fiorentino, N.M., Opoku-Acheampong, A.B., Joseph, M.V., Guo, Q., Alavi, S., Lindshield, B.L. 2017. Newly formulated, protein quality-enhanced, extruded sorghum-, cowpea-, corn-, soya-, sugar-And oil-containing fortified-blended foods lead to adequate Vitamin A and iron outcomes and improved growth compared with non-extruded CSB+ in rats. *Journal of Nutritional Science*, 6, e18.
- Bingham, A.C., Subramanyam, B., Mahroof, R., Alavi, S. 2017. Development and validation of a model for predicting survival of young larvae of *Tribolium castaneum* exposed to elevated temperatures during heat treatment of grain-processing facilities. *Journal of Stored Products Research*, 72, 143-152.
- Manbeck, A.E., Aldrich, C.G., Alavi, S., Zhou, T., and Donadelli, R.A. 2017. The effect of gelatin inclusion in high protein extruded pet food on kibble physical properties. *Animal Feed Science and Technology*, 232, 91-101.
- Adedeji, A.A., Zhou, Y., Fang, X., Davis, D.A., Fahrenholz, A., and Alavi, S. 2017. Utilization of sorghum distillers dried grains (sDDGS) in extruded and steam pelleted shrimp diets. *Aquaculture Research*, 48(3): 883–898; doi:10.1111/are.12932.
- Adedeji, A.A., Joseph, M.V., Plattner, B., and Alavi, S. 2017. Physicochemical and functional properties of extruded sorghum based bean analog. *Journal of Food Process Engineering*. 40(2); doi: 10.1111/jfpe.12401.
- Adedeji, A.A., Suhr, E., Bhadriraju, S., and Alavi, S. 2017. Drying characteristics of bean analog – A sorghum based extruded product. *Journal of Food Processing and Preservation*, 41(2); doi:10.1111/jfpp.12856.
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- Chanadang, S., Chambers, E, and Alavi, S. 2016. Tolerance testing for cooked porridge made from a sorghum based fortified blended food. *Journal of Food Science*. 81(5): S1210-1221.
- Zhu, L., Jones, C., Guo, Q., Lewis, L., Stark, C. R., and Alavi, S. 2016. An evaluation of total starch and starch gelatinization methodologies in pelleted animal feed. *Journal of Animal Science*, 94(4):1501–1507; doi:10.2527/jas2015-9822
- Manikantan, M.R., Ambrose, R.P., and Alavi, S. 2015. Flow-specific physical properties of coconut flours. *International Agrophysics*, 29(4): 459–465.
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- Phan, U., Edgar IV, C., Natarajan, P., and Alavi, S. 2014. Accelerated vs. real time modeling for shelf life: An example with fortified blended foods. *Science and Technology Development Journal*, 17(3), 83-91. doi: 10.32508/stdj.v17i3.1503.
- Koppel, K., Gibson, M., Alavi, S., and Aldrich, G. 2014. The effects of cooking process and meat inclusion on pet food flavor and texture characteristics. *Animals*, 4 (2): 254-271.
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- Yoo, J., Alavi, S., Adhikari, K., Haub, M.D., Aberle, R.A., and Huber, G. 2013. Rice-shaped extruded kernels: Physical, sensory and nutritional properties. *International Journal of Food Properties*. 16 (2): 301-321. Kansas AES Contribution Number 10-197-J.
- Devi, N.L., Sagaram, S., Tang, X., Shaur, S.A., Dogan, H., and Alavi, S. 2013. Development of protein-rich sorghum-based expanded snacks using extrusion technology. *International Journal of Food Properties*. 16 (2): 263-276. Kansas AES Contribution Number 10-279-J.
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- Tang, X., and Alavi, S. 2012. Structure and physical properties of starch/poly vinyl alcohol/laponite RD nanocomposite films. *Journal of Agriculture and Food Chemistry*. 60: 1954–1962. Kansas AES Contribution Number 11-137-J.
- Karkle, E., Alavi, S. and Dogan, H. 2012. Cellular architecture and its relationship with mechanical properties in expanded extrudates containing apple pomace. *Food Research International*. 46 (1): 10-21. Kansas AES Contribution Number 11-114-J.
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- Alavi, S., Ruan, S., Adapa, S.S., Joseph, M., Lindshield, B., and Chilukuri, S. 2018. Use of grain sorghum in extruded products developed for gluten-free and food aid applications. In *Sorghum: State of the Art and Future Perspectives*. Eds. Ciampitti, I., and Prasad, V. Agronomy Monograph 58. ASA and CSSA, Madison, WI.
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S. Thomas, S. Alavi, K.P.Sandeep, N. Kalarickal Jini V., and S. Rao. Apple Academic Press, Ontario, Canada.

- Gibson, M., and Alavi, S. 2013. Pet food processing – Understanding transformations in starch during extrusion and baking. *Cereal Foods World*. 58(5): 232-236.
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Funded Grants and Contracts (\$11,443,456)

- USDA FOREIGN AGRICULTURAL SERVICE. 2020. \$135,000. Packaging evaluation and accelerated shelf life studies for fortified rice. . Principal Investigator: Alavi, S. Duration 09/15/2020-07/15/2020.
- AQUACULTURE TECHNOLOGIES CANADA. 2020. \$35,340. Sinking and floating aquatic feed using single screw extrusion. Principal Investigator: Alavi, S. Duration 01/01/2020-6/30/2020.
- UNITED SORGHUM CHECKOFF PROGRAM. 2020. \$10,000. Sorghum-based expanded breakfast cereal using extrusion. Principal Investigator: Alavi, S. Duration 09/15/2020-01/15/2021.
- SCHEME FOR PROMOTION OF ACADEMIC AND RESEARCH COLLABORATION (SPARC), GOVERNMENT OF INDIA. 2019. \$95,829. Vachellia nilotica based biocompatible hybrid nanostructured coatings/films for seeds and fruits. Principal Investigators: Kalarikkal, N., Thomas, S., Sandeep, K.P., and Alavi, S. Duration: 3/15/2019 – 3/14/2021.
- SCHEME FOR PROMOTION OF ACADEMIC AND RESEARCH COLLABORATION (SPARC), GOVERNMENT OF INDIA. 2019. \$76,610. Thermal food processing optimization for simultaneous multi-product sterilization. Principal Investigators: Anandalakshmi, R., Kotecha, P., Sandeep, K.P., and Alavi, S. Duration: 3/15/2019 – 3/14/2021.
- GENERAL MILLS (BLUE BUFFALO) 2019. \$8,835. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 8/15/2019 – 12/15/2019.
- OMD FOOD PRODUCTS CORP. 2019. \$37,671. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 7/1/2019 – 12/15/2019.
- CORBION. 2019. \$8,890. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 10/15/2019 – 12/15/2019.

- ARCHER DANIELS MIDLAND. 2019. \$5890. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 11/15/2019 – 12/15/2019.
- AQUACULTURE TECHNOLOGIES CANADA. 2019. \$20,615. Confidential sponsored project. Principal Investigator: Alavi, S. Duration 11/01/2019-12/31/2019.
- WENGER MANUFACTURING. 2019. \$8,000. Upgrade of KSU extrusion lab pilot-scale facilities. Principal Investigator: Alavi, S. Duration: 05/01/19 - 12/33/19.
- WENGER MANUFACTURING. 2017. \$10,000. Upgrade of KSU extrusion lab pilot-scale facilities. Principal Investigator: Alavi, S. Duration: 10/04/17 - 06/30/17.
- WENGER MANUFACTURING. 2017. \$6,500. Confidential sponsored project. Principal Investigators: Alavi, S, and Carciofi, A. Duration: 8/01/17 - 02/28/18.
- PEPSICO 2017. \$75,000. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 1/1/17 - 12/31/17.
- PEPSICO 2016. \$1,500,000. Confidential sponsored project. Principal Investigators: Alavi, S., and Chambers, E. Duration: 12/15/16 - 12/15/19.
- UNITED SORGHUM CHECKOFF PROGRAM. 2015. \$150,000. Sustainability, oxidative stress mitigation and sensory characteristics of sorghum-based canine diets designed for the international market. Principal Investigators: Alavi, S., de Godoy, M.R.C., and Koppel, K. Duration: 03/15/16 - 03/14/17.
- UNITED SORGHUM CHECKOFF PROGRAM. 2014. \$130,000. Use of grain sorghum as the primary grain ingredient in premium extruded foods designed for cats. Principal Investigators: Alavi, S., Carciofi, A., and Koppel, K. Duration: 03/15/15 - 03/15/17.
- WENGER MANUFACTURING. 2014. \$30,000. Upgrade of KSU extrusion lab pilot-scale facilities. Principal Investigator: Alavi, S. Duration: 11/13/14 - 02/28/15.
- HERSHEY COMPANY. 2014. \$15,090. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 10/27/14 - 06/30/15.
- WENGER MANUFACTURING. 2014. \$30,000. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 11/13/14 - 02/28/15.
- PEPSICO ADVANCED RESEARCH GROUP. 2014. \$5,000. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 08/08/14 - 11/26/14.
- PEPSICO, INC. 2014. \$7,400. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 05/01/14 - 07/31/14.
- PEPSICO, INC. 2013. \$67,500. Confidential sponsored project. Principal Investigators: Alavi, S., and Zhu, L. Duration: 09/15/13 - 12/15/14.
- PEPSICO, INC. 2013. \$9,450. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 09/15/13 - 11/30/13.
- UNITED SORGHUM CHECKOFF PROGRAM. 2013. \$68,550. Use of grain sorghum as the primary cereal ingredient in premium pet food products. Principal Investigators: Alavi, S., Carciofi, A., and Gibson, M. Duration: 03/01/14 - 02/28/15.
- WENGER MANUFACTURING. 2012. \$60,000. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 12/01/12 - 05/31/13.
- CHS FOUNDATION GRANT. 2012. \$10,000. K-State Study Abroad Program: Agriculture and Food Processing in Southern Africa. Duration: 11/9/12 - 6/30/13.
- USDA FOREIGN AGRICULTURAL SERVICE - MICRONUTRIENT FORTIFIED FOOD AID PRODUCTS PILOT (MFFAPP). 2012. \$5,039,856. Novel sorghum-based fortified blended foods for infants and young children. Contract number # FFE-621-2012/033-00. Principal Investigators: Alavi, S., Lilja, N., Chambers, E., Lindshield, B., and Procter, S. Duration: 10/01/12 - 6/30/16.
- USDA FAS MICRONUTRIENT FORTIFIED FOOD AID PROJECT PILOT (MFFAPP) SUBCONTRACT. 2012. \$178,204. Enhancing food aid programs by optimizing Ultra Rice. Principal Investigator: PATH, Seattle, WA. Duration: 1/01/12 - 11/30/12.

- PEPSICO. 2011. \$21,860. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 10/15/11 - 12/15/11.
- MGP INGREDIENTS. 2011. \$70,000. Confidential sponsored project. Principal Investigator: Alavi, S. Duration: 8/1/11 - 7/31/13.
- USDA INTERNATIONAL SCIENCE AND EDUCATION GRANT. 2011. \$149,633. Raising the Global Intelligence Quotient of U.S. workforce via food security and agricultural value addition in Mozambique. Principal Investigators: Alavi, S., and Lilja, N. Duration: 9/1/11 - 8/31/14.
- LOTUS PETFOOD 2011. \$30,000. Confidential sponsored project. Principal Investigators: Alavi, S., and Aldrich, G. Duration: 8/1/11 - 7/31/13.
- KANSAS GRAIN SORGHUM COMMISSION 2011. \$37,140. Novel sorghum based food products for infant, young children and adult nutrition. Principal Investigators: Alavi, S., Plattner, B., and Maichel, E. Duration: 3/1/11 - 9/30/11.
- UNITED SORGHUM CHECKOFF PROGRAM 2010. \$59,725. Utilization of sorghum ingredients and co-products in aquatic animal feed production. Principal Investigator: Alavi, S. Duration: 3/1/11 - 2/29/12.
- UNITED SORGHUM CHECKOFF PROGRAM 2010. \$59,450. Sorghum soy blends (SSB) as a food aid product. Principal Investigator: Alavi, S. Duration: 3/1/11 - 2/29/12
- WENGER MANUFACTURING 2010. \$5,000. Novel extruded cereal-soy blends for infant, young children and adult nutrition. Principal Investigator: Alavi, S. Duration: 3/1/11 - 2/29/12
- OFFICE OF INTERNATIONAL PROGRAMS INTERNATIONAL INCENTIVE GRANT 2010. \$2,000. Support for meeting with new partner university in India – Mahatma Gandhi University, Kottayam. Principal Investigator: Alavi, S. Duration: 9/15/10 - 1/31/11
- K-STATE SOUTH ASIA PROJECT MINI GRANT 2010. \$3,000. Study abroad class to India as part of South Asia curriculum. Principal Investigators: Alavi, S. Duration: 3/15/10 - 9/15/10.
- KANSAS SOYBEAN COMMISSION 2010. \$36,970. Novel soy-based savory snacks using extrusion processing. Principal Investigators: Alavi, S., Adhikari, K., and Tang, X. Duration: 7/1/10 - 6/30/11.
- K-STATE CENTER FOR SUSTAINABLE ENERGY 2009. \$13,000. Novel thermo-mechanical pre-treatment and downstream technologies for efficient ethanol production from lignocellulosic biomass. Principal Investigator: Alavi, S. Duration: 8/1/09 - 7/31/10.
- KANSAS SOYBEAN COMMISSION FY10. \$35,530. Premium texturized soybean protein by extrusion processing - product quality from different formulations and processing parameters. Principal Investigators: Alavi, S., and Cheng, E. Duration: 7/1/09 - 6/30/10
- KSU ENGAGEMENT INCENTIVE GRANT 2008. \$11,200. Development and promotion of healthy snack products for school children. Principal Investigators: Sajid Alavi, Koushik Adhikari, Tanadalayo Kidd and Nancy Muturi. Duration: 1/15/09 - 1/14/11.
- KSU FACULTY-LED STUDY ABROAD INCENTIVE GRANT INITIATIVE 2008. \$6,000. Agriculture and Food Processing in North India. A three-credit study abroad course in Summer 2010. Principal Investigators: Sajid Alavi and Hulya Dogan.
- GREAT PLAINS SORGHUM IMPROVEMENT AND UTILIZATION CENTER 2008. \$ 23,840. New uses for sorghum in food and non-food applications using extrusion processing. Principal Investigator: Sajid Alavi. Duration: 8/1/08 - 7/31/09.
- USDA-NRI COMPETITIVE GRANT 2008. \$498,130. Development of cross-linked bio-nanocomposite packaging films with enhanced barrier and mechanical properties. Principal Investigators: Sajid Alavi, Qixin Zhong (U of Tennessee), K.P. Sandeep (NC State) and Xiaozhi Tang. Duration: 09/01/2008 – 08/31/2011.
- KANSAS SOYBEAN COMMISSION FY09. \$35,730. Bioenergy from soybean hulls - efficiency and economics of different pretreatment processes. Principal Investigators: Sajid Alavi, Buddhi Lamsal, Vincent Amanor-Boadu and Ron Madl. Duration: 7/1/08 - 6/30/09.
- PEPSICO, INC. 2008. \$37,880. Confidential sponsored project. Principal Investigator: Sajid Alavi.

Duration: 04/16/08 - 12/15/08.

- USDA-FAS AGRICULTURAL KNOWLEDGE INITIATIVE (AKI) PROGRAM ON EXTRUSION TECHNOLOGY COLLABORATIONS WITH INDIA 2007. \$50,000. Novel whey protein and fruit-based expanded snacks using extrusion processing. Principal Investigators: Sajid Alavi and Syed Rizvi (Cornell University). Duration: 01/01/08 – 12/31/07.
- USDA-FAS NORMAN E. BORLAUG INTERNATIONAL AGRICULTURAL SCIENCE AND TECHNOLOGY FELLOW PROGRAM 2007. \$44,946. Novel Fruit and Vegetable-Based Expanded Snacks Using Extrusion Processing. Principal Investigator: Sajid Alavi. Duration: 10/01/07 - 09/30/08.
- FRITOLAY, INC. 2007. \$32,000. Confidential sponsored project. Principal Investigator: Sajid Alavi, Yomgcheng Shi and Hulya Dogan. Duration: 08/01/07 - 10/31/07.
- GREAT PLAINS SORGHUM IMPROVEMENT AND UTILIZATION CENTER FY08. \$23,090. New uses for sorghum in food and non food applications using extrusion processing. Principal Investigator: Sajid Alavi. Duration: 7/1/07 - 6/30/08.
- KANSAS SOYBEAN COMMISSION FY08. \$34,215. Investigation of soybean hull as a value-added feedstock for bioenergy and biomaterials. Principal Investigators: Sajid Alavi, Buddhi Lamsal, Ron Madl, Jon Faubion and Virgil Smail. Duration: 7/1/07 - 6/30/08.
- KANSAS WHEAT COMMISSION FY08. \$36,823. Investigation of wheat cellulosic material as feedstock for bioenergy and biomaterials. Principal Investigators: Sajid Alavi, Buddhi Lamsal, Ron Madl and Jon Faubion. Duration: 7/1/07 - 6/30/08.
- GREAT PLAINS SORGHUM IMPROVEMENT AND UTILIZATION CENTER FY07. \$23,090. Interaction between food additives and sorghum grain composition on quality of sorghum food products. Principal Investigator: Sajid Alavi. Duration: 7/1/06 - 6/30/07.
- KANSAS WHEAT COMMISSION FY06. \$28,836. Wheat-Based Pre-Cooked Flours Using Low Shear Twin-Screw Extrusion Processing. Principal Investigators: Sajid Alavi, Tom Herald and Ron Madl. Duration: 7/1/05 - 6/30/06.
- AGRICHEM, INC. 2004. \$20,000. Confidential sponsored project. Principal Investigators: Sajid Alavi, Keith Behnke. Duration: 1 year.
- AGRICULTURAL EXPERIMENTAL STATION, KSU 2004. \$27,000. Differential scanning calorimeter instrumentation grant. Principal Investigator: Sajid Alavi.
- KELLOGGS COMPANY. 2004. \$2,628. Confidential sponsored project. Principal Investigator: Sajid Alavi. Duration: 6 months.
- USDA-NRI COMPETITIVE GRANT 2003. \$249,000. Phase transition analysis and non-invasive imaging for understanding microstructure formation in biopolymeric foams. Principal Investigators: Sajid Alavi, Susan Sun, Syed Rizvi (Cornell University). Duration: 9/1/03 – 8/31/06.
- THE ANDERSONS RESEARCH GRANT PROGRAM (NC-213) 2003. \$ 40,000. Development and implementation of a thermal death kinetic model for management of Indian Meal Moth and Red Flour Beetle in food processing environments. Principal Investigators: Bhadriraju Subramanyam, Sajid Alavi and Fangneng Huang. Duration: 2 years.
- MIDWEST ADVANCED FOOD MANUFACTURING ALLIANCE, USDA 2003. \$33,000. Suitability of maize and sorghum for dry milling and extrusion processing. Principal Investigators: Tim Herrman, Sajid Alavi and Kyung-Min Lee. Duration: 1 year.

Professional Meeting Presentations and Abstracts (131 from 2002-15; 32 invited)

- Thatte, A., Manepalli, P., Sharma, C., Thomas, S., Kalarikkal, N., and Alavi, S. 2015. Preparation and characterization of Starch/PVOH/Laponite RD films for biodegradable food packaging. AACC International Annual Meeting, October 18 - 21, Minneapolis, MN. (Oral presentation)

- Zhou, T., Alavi, S., and Phebus, R. 2015. Role of high-intensity-preconditioner in pet food safety. IFT Annual Meeting and Expo, July 11-14, Chicago, IL. (Poster presentation).
- Alavi, S. 2014. 'Synthetic meat'? - Advances in texturization and extrusion of cereal and legume protein. AACC International Annual Meeting, October 5 - 8, Providence, RI. (**Invited symposium oral presentation**).
- Joseph, M., Zhu, L., Adedeji, A., Gwartz, J., and Alavi, S. 2014. Adaptation of conventional wheat flour milling system to refine sorghum, corn and cowpea grains. AACC International Annual Meeting, October 5 - 8, Providence, RI. (Poster presentation; Finalist, Engineering & Processing Division Student Paper Competition).
- Zhu, L., Lewis, L., Jones, C., Shi, Y.-C., and Alavi, S. 2014. A comparative study of two testing methods for degree of gelatinization in pelleted animal feed. AACC International Annual Meeting, October 5 - 8, Providence, RI. (Poster presentation).
- Adedeji, A., Joseph, M., and Alavi, S. 2014. Micronutrient fortified extruded rice kernels: Impact of processing and formulation on physico-chemical attributes. AACC International Annual Meeting, October 5 - 8, Providence, RI. (Poster presentation).
- Manepalli, P., Dogan, H., Mathew, L., and Alavi, S. 2014. Stochastic study of flow and expansion of starch-based melts during extrusion – Model development and validation. AACC International Annual Meeting, October 5 - 8, Providence, RI. (Oral presentation).
- Putarov, T.C., Sa, F.C., Carciofi, A.C., Joseph, M., and Alavi, S. 2014. Sorghum-based extruded pet food: impact of particle size and process conditions on physico-chemical attributes, AACC International Annual Meeting, October 5 - 8, Providence, RI. (Oral presentation).
- Manikantan, M.R., Joseph, M., Patwa, A., Alavi, S., and Ambrose, K. 2014. Effect of coconut flour incorporation on operative rheological properties of cereal flours. American Society of Agricultural and Biological Engineers Annual International Meeting, July 13-16, Montreal, Canada. (Oral Presentation).
- Alavi, S. 2013. Extrusion technology as a means for promoting millets. Global Consultation on Millets, December 18-20, Hyderabad, India. (**Invited oral presentation**).
- Alavi, S. 2013. Better utilization of millets – The U.S. model. Global Consultation on Millets, December 18-20, Hyderabad, India. (**Invited oral presentation**).
- Kumar, J., Karkle, E., Alavi, S., Adhikari, K., and Kidd, T. 2013. Knowledge, attitudes, and behavior towards snacking and health in Northeast Kansas school children and their parents. 141st American Public Health Association Annual Meeting and Expo, November 2-6, Boston, MA. (Oral Presentation).
- Alavi, S. 2013. Retention of antioxidants during extrusion cooking of cereal foods. AACC International Annual Meeting, September 29 - October 2, Albuquerque, NM. (**Invited symposium oral presentation**).
- Manepalli, P. H., Garg, A., Dogan, H., Mathew, J., and Alavi, S. 2013. Mathematical modeling of flow behavior and cell structure formation during extrusion . AACC International Annual Meeting, September 29 - October 2, Albuquerque, NM. (Poster presentation; 1st Place, Engineering & Processing Division Student Paper Competition).
- Alavi, S. 2013. Extrusion Processing - Basics. II Congresso sobre Tecnologia da Produção de Alimentos para Animais (Second Congress on Technology of Production of Food for Animals), September 3-4, Maringa, Brazil. (**Invited oral presentation**).
- Alavi, S. 2013. Extrusion Processing – Aquatic Feed. II Congresso sobre Tecnologia da Produção de Alimentos para Animais (Second Congress on Technology of Production of Food for Animals), September 3-4, Maringa, Brazil. (**Invited oral presentation**).
- Alavi, S. Pet food extrusion at K-State – Research capabilities. Rendering Summit, August 21, Manhattan, KS. (**Invited oral presentation**).

- Kumar, J., Karkle, E., Alavi, S., Adhikari, K., and Kidd, T. 2013. Comparing hedonic responses of middle school children towards healthy and unhealthy snack food. 10th Pangborn Sensory Science Symposium, August 11-15, Rio de Janeiro, Brazil. . (Poster presentation).
- Zhu, L., Adedeji, A., and Alavi, S. 2013. Utilization of germinated wheat in extruded nutritional products: Digestibility, bio-functional compounds and sensory analysis. IFT Annual Meeting and Expo, July 13-16, Chicago, IL. (Poster presentation).
- Adedeji, A., Zhu, L., Padmanabhan, N., and Alavi, S. 2013. Digestibility and micronutrient retention of micronutrient-fortified extruded sorghum soy blends. IFT Annual Meeting and Expo, July 13-16, Chicago, IL. (Poster presentation).
- Padmanabhan, N., Adedeji, A., Zhu, L., and Alavi, S. 2013. Physicochemical properties of newly developed extruded sorghum soy blends for U.S. food-aid programs. IFT Annual Meeting and Expo, July 13-16, Chicago, IL. (Poster presentation).
- Joseph, M., Adedeji, A., and Alavi, S. 2013. A novel delivery mechanism for nutrition using sorghum-based extruded pre-cooked 'beans'. IFT Annual Meeting and Expo, July 13-16, Chicago, IL. (Poster presentation).
- Alavi, S. 2013. Extrusion processing - Fundamentals and research applications. Nanjing University of Finance and Economics, June 17, Nanjing, China. (**Invited oral presentation**).
- Alavi, S. 2013. Overview of extrusion research at Kansas State University. Jiangnan University, Wuxi, China. (**Invited oral presentation**).
- Alavi, S. 2013. Value-added utilization of grain sorghum. Institute of Agro-Products Processing Science and Technology, Chinese Academy of Agricultural Sciences (CAAS), June 19, Beijing, China. (**Invited oral presentation**).
- Alavi, S. 2013. Innovations in Extrusion - Configuring a multi-operation, low-shear, semi-cold process for novel and nutritious products. SAAFoST Pretoria Branch Meeting, May 30, Pretoria, S. Africa. (**Invited oral presentation**).
- Gibson, M., and Alavi, S. 2013. Starch gelatinization and amylose-lipid complexation during processing of baked and extruded pet foods. Petfood Forum, April 15-17, Chicago, IL. (Poster presentation).
- Roberts, R., Alavi, S., and Aldrich, G. 2013. Effect of rework inclusion on processing and final product characteristics of pet food. Petfood Forum, April 15-17, Chicago, IL. (Poster presentation).
- Graham, N., Beyer, R.S., Aldrich, G., and Alavi, S. 2013. Value-added agriculture by-products: Isolation of cellulose by thermal-mechanical extrusion methods. Petfood Forum, April 15-17, Chicago, IL. (Poster presentation).
- Padmanabhan, N., Joseph, M., Adedeji, A., Zhu, L., and Alavi, S. 2013. Novel nutrition delivery mechanisms and strategic partnerships for implementation in US food aid programs. Universities Fighting World Hunger Summit, March 2-4, Kansas City, MO. (Oral presentation).
- Padmanabhan, N., Joseph, M., Adedeji, A., Zhu, L., and Alavi, S. 2013. Novel nutrition delivery mechanisms and strategic partnerships for implementation in US food aid programs. Universities Fighting World Hunger Summit, March 2-4, Kansas City, MO. (Poster presentation).
- Zhou, Y., Fang, X., Davis, D.A., Adedeji, A.A., and Alavi, S. 2013. Growth of juvenile Pacific white shrimp *Litopenaeus vannamei* fed diets containing different levels of sorghum co-products (DDGS) using extrusion and pelleting methods. Aquaculture 2013: Striking a Chord for Sustainable Aquaculture, February 21-25, Nashville, TN USA. (Oral presentation).
- Alavi, S., Garg, A., Gajula, H., and Dogan, H. 2012. Reducing oil uptake in extruded snacks—Mechanisms for fat absorption and distribution in a cellular matrix. AACCC International Annual Meeting, September 30 - October 3, Hollywood, FL. (**Invited symposium oral presentation**).
- Alavi, S., Adedeji, A., Joseph, M., and Plattner, B. 2012. Innovations in extrusion—Configuring a

multioperation, low-shear, semi-cold process for novel and nutritious products. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. **(Invited symposium oral presentation)**.

- Padmanabhan, N., Adedeji, A., Olson, V., Chambers, E., and Alavi, S. 2012. Novel sorghum-based fortified blended food for infants, young children, and adults. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Oral presentation; 1st Place, Engineering & Processing Division Student Paper Competition).
- Khamis, M., Kodavali, S., Dogan, H., and Alavi, S. 2012. Extrusion of wheat flour fractions to improve functionality and add value. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Oral presentation).
- Adedeji, A.A., Yangen, Z. Davis, A., and Alavi, S. 2012. Utilization of sorghum co-product (DDGS) in aquatic feed production. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Poster presentation).
- Adedeji, A. A., Joseph, M., Plattner, B., Maichel, E., and Alavi, S. 2012. Novel sorghum based bean like product-bean analog. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Poster presentation).
- Gibson, M., Aldrich, G., and Alavi, S. 2012. Physical differences between baked and extruded pet foods. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Poster presentation).
- Kodavali, S., Adhikari, K., and Alavi, S. 2012. Effects of soy protein isolate, calcium carbonate, and pregelatinized wheat starch on oil uptake and texture of soy based snacks. AACC International Annual Meeting, September 30 - October 3, Hollywood, FL. (Poster presentation).
- Alavi, S., and Adedeji, A. 2012. Value-added utilization of grain sorghum and its co-products via extrusion. 2012 Great Plains Sorghum Conference & 29th Sorghum Research and Utilization Conference, August 28-30, Manhattan, KS. **(Invited oral presentation)**.
- Garg, A., Mitchell, P., Padmanabhan, N., Alavi, S., and Dogan, H. 2012. Modeling of microstructure formation and oil-uptake during frying of expanded extrudates. IFT Annual Meeting and Expo, June 25 - 28, Las Vegas NV. (Poster presentation).
- Roberts, R., Alavi, S., Maningat, O., and DeMeritt, G. 2012. Relationship between wheat gluten rheology and physicochemical properties of texturized vegetable protein. IFT Annual Meeting and Expo, June 25 - 28, Las Vegas, NV. (Oral presentation).
- Khamis, M., Kodavali, S., Dogan, H., Alavi, S., and Wilson, J. 2012. Effect of extrusion on physicochemical properties of wheat flour fractions. IFT Annual Meeting and Expo, June 25 - 28, Las Vegas NV. (Poster presentation).
- Alavi, S., Ali, S., Tang, X., and Faubion, J. 2012. Natural polymer nanocomposites from blends. 1st International Conference on Polymers in Packaging Applications (ICPPA2012), March 31-April 2, Kottayam, India. **(Invited oral presentation)**.
- Alavi, S. 2012. Nutrition and food security through processed foods. 3rd International Grains Conference, May 1, New Delhi, India. **(Invited oral presentation)**.
- Alavi, S. 2012. Research and development in agricultural value-addition – Transferable technologies. Workshop on Food Security and Agricultural Value-Addition in Mozambique: Challenges and Solutions, February 27-29, Maputo, Mozambique. **(Invited oral presentation)**.
- Alavi, S. 2012. International Best Practices on Usage of Wheat - Nutrition and Food Security through Processed Foods. 6th International Seminar on Wheat & Wheat Products: Moving Towards Food & Nutrition Security, February 9-11, New Delhi, India. **(Invited oral presentation)**.
- Alavi, S. 2011. Food security and value addition: International experiences. KSU Vernon Larson International Lecture. December 6. Manhattan, KS. **(Invited oral presentation)**.
- Kodavali, S., and Alavi, S. 2011. Moisture and oil uptake during processing of soy-based extruded snacks. AACC International Annual Meeting, October 16-19, Palm Springs, CA. Cereal Foods World 56:A49. (Poster presentation).

- De Mesa-Stonestreet, N.J.E., Alavi, S., Dogan, H., and Faubion, J. 2011. Rheological properties of sorghum protein concentrates produced by extrusion-enzyme liquefaction. AACC International Annual Meeting, October 16-19, Palm Springs, CA. Cereal Foods World 56:A37. (Poster presentation).
- Alavi, S., Karkle, E., Giannetta, F., and Dogan, H. 2011. Enhancement of antioxidant capacity and dietary fiber profile of expanded snacks utilizing fruit and vegetable pomaces. AACC International Annual Meeting, October 16-19, Palm Springs, CA. Cereal Foods World 56:A6. (**Invited symposium oral presentation**).
- Bell, B., Adhikari, K., Chambers, E., Alavi, S., and King, S. 2011. Do spices affect emotions? A study with an extruded cereal product. The 9th Pangborn Sensory Science Symposium, September 4-8, Toronto, Canada. (Poster presentation).
- De Mesa-Stonestreet, N.J.E., and Alavi, S. 2011. Pilot-scale production of sorghum protein concentrates using extrusion-enzyme liquefaction. IFT Annual Meeting and Expo, June 11 - 14, New Orleans, LA. (Oral presentation).
- Tang, X., and Alavi, S. 2011. Understanding mechanical and barrier properties of starch, polyvinyl alcohol, and layered silicate nanocomposite films utilizing mathematical models 2011 IFT Annual Meeting, June 11 - 14, New Orleans LA. IFT Annual Meeting and Expo, June 11 - 14, New Orleans, LA. (Poster presentation).
- Tang, X., and Alavi, S. 2011. Structure and properties of starch/polyvinyl alcohol/multiwalled carbon nanotube nanocomposites. IFT Annual Meeting and Expo, June 11 - 14, New Orleans, LA. (Poster presentation).
- Karkle, E., Keller, L.C., Dogan, H., and Alavi, S. 2011. Extent of matrix transformation in fiber-added extrudates under different hydration regimens and impact on texture, microstructure, and digestibility. IFT Annual Meeting and Expo, June 11 - 14, New Orleans, LA. (Poster presentation).
- Alavi, S. 2011. Value added processing of soybean ingredients for food and nonfood applications. Kansas Soybean Expo, Jan 12. Topeka, Kansas. (**Invited oral presentation**).
- Alavi, S. 2010. Food processing in the developing world – challenges and opportunities with special focus on India and Southern Africa. KSU International Agriculture Brownbag Seminar. December 2, Manhattan, KS. (**Invited oral presentation**).
- Alavi, S. 2010. Extrusion processing – Research and engagement for addressing nutritional challenges worldwide. AACC International Annual Meeting, October 24-27, Savannah, GA. Cereal Foods World 55(4):A18. (**Invited oral presentation; Young Research Scientist Award**).
- Karkle, E. L., Alavi, S., Dogan, H., Shi, Y., and Keller, L.C. 2010. Impact of cellular architecture and solid matrix properties on the texture of high fiber expanded foods. AACC International Annual Meeting, October 24-27, Savannah, GA. Cereal Foods World 55(4):A25. (**Oral presentation**).
- Yoo, J., Alavi, S., Amanor-Boadu, V., and Vadlani, P. 2010. Systematic investigation of thermo-mechanical extrusion processing as pretreatment method for ethanol production from soybean hull and sorghum stover. AACC International Annual Meeting, October 24-27, Savannah, GA. Cereal Foods World 55(4):A34. (Oral Presentation).
- Ali, S., Alavi, S, and Faubion, J. 2010. Starch/poly vinyl alcohol/ Na⁺ MMT based biodegradable nanocomposites produced through melt extrusion. AACC International Annual Meeting, October 24-27, Savannah, GA. Cereal Foods World 55(4):A36. (Poster presentation; 2nd Place, Engineering & Processing Division Student Paper Competition).
- Tang, X., and Alavi, S. 2010. Structure and properties of poly (vinyl alcohol)/starch/laponite RD nanocomposite films. AACC International Annual Meeting, October 24-27, Savannah, GA. Cereal Foods World 55(4):A71. (Poster presentation).
- Alavi, S. 2010. Soy extrusion processing technologies. Soy Innovation Africa. August 26-27, 2010 Cape Town, South Africa. (**Invited oral presentation**)
- De Mesa-Stonestreet, N.J.E., Alavi, S., Adhikari, K., Maichel, E., and Huppert, T. 2010. Premium texturized soybean protein by extrusion processing - A systematic investigation of processing

parameters and formulations. International Union of Food Science and Technology (IUFoST) Annual Meeting, August 23-25, Cape Town, South Africa. (Poster presentation).

- Alavi, S. 2010. Grain sorghum utilization in food applications - Ongoing research at K-State. 2010 Great Plains Sorghum Conference & 27th Biennial Sorghum Research and Utilization Conference, August 11-12, Mead, NE. **(Invited oral presentation)**
- De Mesa-Stonestreet, N.J.E., Alavi, S., and Gwartz, J. 2010. Sorghum protein concentration by extrusion-enzyme liquefaction: A process optimization study. IFT Annual Meeting and Expo, July 18-21. Chicago, IL. (Poster presentation).
- Giannetta, F., Karkle, E., Alavi, S., Madl, R., and Vadlani, P. 2010. Physical properties and antioxidant activity of wheat-based extruded snacks with apple and tomato pomaces. IFT Annual Meeting and Expo, July 18-21. Chicago, IL. (Poster presentation).
- Tang, X., Devi, N.L., Shobha, S., Ali, S.S., Alavi, S., and Dogan, H. 2010. Development of protein-rich sorghum-based expanded snacks using extrusion technology. IFT Annual Meeting and Expo, July 18-21. Chicago, IL. (Poster presentation).
- Yoo, J., Alavi, S., Vadlani, P., and Amanor-Boadu, V. 2010. Thermo-mechanical extrusion processing as a pretreatment for efficient ethanol production from soybean hulls. K-State Center for Sustainable Energy Meeting, May 6, Manhattan, KS. (Poster presentation; First prize 2009-10 CSE Graduate Assistantship Awards).
- Ali, S.S., Tang, X., Alavi, S., and Faubion, J. 2010. Fundamental studies on molecular interactions in starch/PVOH/clay nanocomposites used for making biodegradable packaging films. K-State Capitol Graduate Research Summit Competition, February 18, Manhattan, KS (Poster presentation).
- Alavi, S., and Kidd, T. 2009. Promoting healthy snacks among school children. K-State Engagement Colloquium: Engaging Health, Changing Lives. October 29, Manhattan, KS. (Oral presentation).
- Ali, S.S., Tang, X., Alavi, S., and Faubion, J. 2009. Fundamental studies on molecular interactions in starch/ PVOH/ clay nanocomposites used for making biodegradable packaging films. AACC International Annual Meeting, September 13-16, Baltimore, MD. Cereal Foods World, 54: O-35. (Oral presentation).
- Tang, X., Alavi, S., and Ali, S.S. 2009. Mechanical and barrier property modeling of starch, polyvinyl alcohol – based nanocomposites and their characterization. AACC International Annual Meeting, September 13-16, Baltimore, MD. Cereal Foods World, 54: O-34. (Oral presentation).
- Yoo, J., Alavi, S., Vadlani, P., and Amanor-Boadu, V. 2009. Novel thermo-mechanical pretreatment of lignocellulosic biomass for efficient ethanol production from agricultural residues. AACC International Annual Meeting, September 13-16, Baltimore, MD. Cereal Foods World, 54: O-32. (Oral presentation).
- Karkle, E.L., and Alavi, S. 2009. Process optimization of extruded snacks containing fruit fiber. IFT Annual Meeting and Expo, June 6-9. Anaheim, California. (Poster presentation).
- Abu-Ghoush, M., Alavi, S., Adhikari, K, and Plattner, B. 2009. Physical, nutritional and sensory evaluation of a novel extrusion - cooked lentil analog product. IFT Annual Meeting and Expo, June 6-9. Anaheim, California. (Poster presentation).
- De Mesa-Stonestreet, N.J.E., Alavi, S., Bean, S.R., Schober, T.J., and Gwartz, J. 2009. Sorghum protein concentration and modification for improved nutrition and functionality. IFT Annual Meeting and Expo, June 6-9. Anaheim, California. (Poster presentation).
- Kumar, P., Sandeep, K.P., Alavi, S., Truong, V.D., and Gorga, R.E. 2009. Synthesis of soy protein isolate-montmorillonite nanocomposites for biodegradable films using melt extrusion. IFT Annual Meeting and Expo, June 6-9. Anaheim, California. (Poster presentation).
- Lee, J., Adhikari, K., Yoo, J., Alavi, S., Aberle, R.A., and Huber, G. R. 2009. Volatile compounds present in rice-shaped extruded grains. IFT Annual Meeting and Expo, June 6-9. Anaheim, California. (Poster presentation).
- Yoo, J., Alavi, S., Vadlani, P., Amanor-Boadu, V., and Oberoi, H.S. 2009. Novel thermo-mechanical pre-treatment of lignocellulosic biomass for efficient ethanol production from agricultural residues.

Capitol Graduate Research Summit, March 12. Topeka, Kansas. (Winner Top Research Poster Award).

- Brijwani, K., Yoo, J., Lamsal, B., and Alavi, S. 2009. Mechanical pretreatments for soy hull and wheat bran for enhanced enzymatic hydrolysis for bioenergy and biomaterials. Kansas Soybean Expo, Jan 7. Topeka, Kansas. (Poster presentation).
- Zhu, L., de Mesa N., Alavi, S., Shi, Y., Dogan, H., and Shukri, R. 2008. Physical and biochemical properties of high amylose – soy protein concentrate extrudates. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A45 (Oral presentation).
- Rogers, S., Steeples, S.L., Dobbeleare-Andrade, K., Alavi, S., Dogan, H., and McKinney, L. 2008. Effect of fresh meat as a protein source on expansion and kibble structure of an extruded canine diet. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A39 (Oral presentation).
- Tang, X., Abrar, M., and Alavi, S. 2008. Structure and properties of Poly (vinyl alcohol)/ starch/ clay nanocomposite films. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A42 (Oral presentation).
- Karkle, E.L., Jain, S., Waghray, K., Alavi, S., and Dogan, H. 2008. Development and evaluation of fruit and vegetable-based extruded snacks. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A31 (Oral presentation).
- Brijwani, K., Lamsal, B., and Alavi, S. 2008. Mechanical pretreatment of soybean hulls and wheat bran for enhanced enzymatic hydrolysis for bioenergy and biomaterials. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A51 (Poster presentation).
- Yoo, J., Alavi, S., Adhikari, K., Haub, M.D., Aberle, R.A., and Huber, G. R. 2008. Rice-shaped extruded kernels: Grains for Hope. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A87 (Poster presentation).
- De Mesa, N.E., Alavi, S., Bean, S.R., and Schober, T.J. 2008. Modification of sorghum proteins for enhanced functionality. AACC Annual Meeting, Sept. 21-24, Honolulu, HI. Cereal Foods World, 53: A56 (Poster presentation).
- Brijwani, K., Yoo, J., Lamsal, B.P., and Alavi, S. 2008. Mechanical pretreatments for soy hull and wheat bran for enhanced enzymatic hydrolysis for bioenergy and biomaterials. Kansas Wheat Day. May 21, Hays, KS. (Poster presentation).
- Brijwani, K., Lamsal, B.P., Alavi, S. 2008. Soy Hull and wheat bran as value added feedstocks for bioenergy and biomaterials. Kansas Soybean Expo. Jan. 9, Topeka, KS. (Poster presentation).
- Cheng, E., Alavi, S., Shi, Y.C., Jeannotte, R., and Welti, R. 2007. Encapsulation of fish oil in starch matrices utilizing extrusion processing. AACC Annual Meeting, Oct. 7-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Oral presentation)
- Kumar, P., Sandeep, K.P., Alavi, S. 2007. Effect of processing parameters of a twin screw extruder on the extent of exfoliation in bio-nanocomposites. AIChE Annual Meeting, Nov. 4-9, Salt Lake City, Utah.
- Gajula, H., Alavi, S., Herald, T., and Adhikari, K. 2007. Pre-cooked fiber-enriched wheat flour obtained by extrusion: functional, nutritional and baked product sensory properties. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Poster presentation)
- De Mesa, N.J.E., Alavi, S., Singh, N., Shi, Y.C. and Dogan, H. 2007. Effect of soy protein concentrate and extruder screw speed on physico-chemical, textural and cellular properties of corn starch-based expanded snacks. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Oral presentation)
- Kaddour, O., Alavi, S., and Behnke, K. 2007. Factors influencing the quality of extruded sinking aquatic feed pellets. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Oral presentation)

- Kaddour, O., and Alavi, S. 2007. Factors influencing the quality of extruded floating aquatic feed pellets. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Poster presentation)
- Kaddour, O., Alavi, S., Dogan, H., Behnke, K., Sorensen, M., and Rizvi, S.S.H. 2007. Effect of different process technologies on microstructure, starch gelatinization and quality of floating and sinking aquatic feed pellets. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Poster presentation)
- Tang, X., Alavi, S., and Herald, T. 2007. Effects of plasticizers and extrusion processing conditions on the structure and properties of starch-clay nanocomposite films. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Oral presentation)
- Yao, N., White, P.J., Jannink, J., and Alavi, S. 2007. Functional and sensory properties of extruded breakfast cereals made from oat lines with various amounts of beta-glucan. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Oral presentation)
- Yao, N., White, P.J., Jannink, J., and Alavi, S. 2007. Dry solids and bile acid concentrations impact bile acid binding capacity of extruded oat cereals. AACC Annual Meeting, Oct. 07-10, San Antonio, TX. Cereal Foods World, 52(4), Suppl. (Poster presentation)
- Kumar, P., Sandeep, K.P., Alavi, S. 2007. Effect of processing parameters of a twin screw extruder on the extent of exfoliation in bio-nanocomposites. AIChE Presentation No. 640e.
- Cho, K.Y., de Mesa, N.J., Rizvi, S.S.H., and Alavi, S. 2007. Melt rheology and 3-D microstructures of steam-expanded and supercritical fluid extrudates. Institute of Food Technologists Annual Meeting, July 28 – Aug. 01, Chicago, IL. Book of Abstracts. (Poster presentation)
- Lundblad, K. K., Issa, S. Hancock, J.D., Sørensen, M., Behnke, K.C., Prestløkken, E., McKinney, L.J., and Alavi, S. 2007. Effects of diet conditioning (steam at low and high temperatures, expanding, and extruding) prior to pelleting on growth performance in nursery pigs. ADSA (American Dairy Science Association)-ASAS-PSA-AMPA Joint Annual Meeting, July 8-12, San Antonio, TX. J. Anim. Sci. 85, Suppl. 1/J. Dairy Sci. 90, Suppl. 1/Poult. Sci. 86, Suppl. 1, p640. (Oral Presentation)
- Lundblad, K. K., Issa, S. Hancock, J.D., Sørensen, M., Behnke, K.C., Prestløkken, E., McKinney, L.J., and Alavi, S. 2007. Effects of diet conditioning (steam at low and high temperatures, expanding, and extruding) prior to pelleting on growth performance in broiler chicks. ADSA (American Dairy Science Association)-ASAS-PSA-AMPA Joint Annual Meeting, July 8-12, San Antonio, TX. J. Anim. Sci. 85, Suppl. 1/J. Dairy Sci. 90, Suppl. 1/Poult. Sci. 86, Suppl. 1, p640. (Oral Presentation)
- Alavi, S., and Cheng, E. 2007. Sorghum flour-based pasta and expanded snack products using extrusion processing. Health, Research and Entrepreneurship: Sorghum Food for Celiac Patients, Sep. 16-17, Naples, Italy. **(Invited Oral Presentation)**
- Alavi, S. 2007. Production—what’s new and innovative. Petfood Forum 2007, Apr. 16-18, Chicago, IL. **(Invited Oral Presentation)**
- Alavi, S. 2007. Extrusion processing - Adding value to cereal grains for food and industrial applications. International Conference on 21st Century Challenges to Sustainable AgriFood Systems, Mar. 15-17, Bangalore, India. **(Invited Oral Presentation)**
- Cheng, E.M., Alavi, S., and Bean, S. 2007. Sorghum-based pre-cooked pasta utilizing extrusion processing. 25rd Biennial Sorghum Research and Utilization Conference, Jan. 14-16, Santa Ana Pueblo, New Mexico. (Poster presentation)
- Tang, X., and Alavi, S. 2006. Use of extrusion for synthesis of starch-nanoclay composites for biodegradable packaging films. AACC Annual Meeting, Sep. 17-20, San Francisco, CA. (Oral Presentation)
- Yao, N., Jannink, J., Alavi, S., and White, P.J. 2006. Properties of extruded products made from high beta-glucan and traditional oat lines. AACC Annual Meeting, Sep. 17-20, San Francisco, CA. (Oral Presentation)

- Liu, S. and Alavi, S. 2006. Production of snack food with Moringa leaf powder using extrusion processing. Institute of Food Technologists Annual Meeting, June 23-28, Orlando, FL. Book of Abstracts. (Poster presentation)
- Agbisit, R.N., Cheng, E.M., and Alavi, S. 2006. Interrelationships among physical, thermal flow, microstructure and mechanical properties of extruded cornstarch-whey protein foams. Institute of Food Technologists Annual Meeting, June 23-28, Orlando, FL. Book of Abstracts. (Poster presentation)
- Cho, K.Y., Alavi, S., and Rizvi, S.S.H. 2006. Microstructures of steam-expanded and SCFX extrudates using 3-D non-invasive image analysis. Institute of Food Technologists Annual Meeting, June 23-28, Orlando, FL. Book of Abstracts. (Poster presentation)
- Gajula, H., Liu, S., Alavi, S., Herald, T., Madl, R., and Scott, B. 2006. Effect of drying method on functional properties of pre-cooked wheat flour obtained by extrusion. Institute of Food Technologists Annual Meeting, June 23-28, Orlando, FL. Book of Abstracts. (Oral Presentation)
- Alavi, S. 2006. Dry processing's impact on palatability. Focus on Palatability. Petfood Forum 2006, Apr. 5-6, Chicago, IL. **(Invited Oral Presentation)**
- Alavi, S. 2006. Extruded products-technology and scope. International Seminar on Wheat and Wheat Products – Emerging Trends and Opportunities, Mar. 7-8, Delhi, India. **(Invited Oral Presentation)**
- Alavi, S. 2005. Thermal death kinetics models for food disinfection. Symposium on 'Thermal Death Kinetic Models: Theory and Applications', Entomological Society of America Annual Meeting, Fort Lauderdale, FL, Dec. 2005. **(Invited Oral Presentation)**.
- Cheng, E., Agbisit, R., Alavi, S., and Pearson, T. 2005. Mechanical-acoustic and sensory evaluations of extruded food foams. AACC Annual Meeting, Orlando, FL, Sep. 2005. (Oral Presentation)
- Singh, H., Bean, S., Alavi, S., and Tang, X. 2005. Use of ultrasound and extrusion processing to improve the nutritional and functional quality of sorghum flour. AACC Annual Meeting, Orlando, FL, Sep. 2005. (Poster Presentation)
- Alavi, S. 2005. Extrusion processing for grain-based food products. Milling and Baking Show, Mar. 9-13, Delhi, India. **(Invited Oral Presentation)**
- Agbisit, R., Trater, A.M., and Alavi, S. 2004. Understanding microstructure-texture relationships of extruded corn starch products with different protein and in-barrel moisture contents. AACC Annual Meeting, San Diego, CA, Sep. 2004. (Oral Presentation)
- Alavi, S., and Trater, A. 2003. Microstructure characterization of biopolymer foams using non-invasive X-ray tomography. Eight Conference of Food Engineering. AIChE Annual Meeting, Nov. 16-21, San Francisco, CA. Proceedings (AIChE Pub. No. 192) p. 324-333. (Oral Presentation)
- Trater, A.M. and Alavi, S.H. 2003. Use of phase transition analysis and non-invasive imaging to study structure formation in biopolymeric foams. Institute of Food Technologists Annual Meeting, July 12-16, Chicago, IL. Book of Abstracts. (Poster presentation)