

Carlos M Corvalan

Assistant Professor

Purdue University, Department of Food Science

745 Agriculture Mall Drive, West Lafayette IN 47907

Education

Postdoctoral Fellow, Biological Engineering, Purdue University, 2000-2002

Ph.D., Chemical Engineering, University of Litoral, Argentina, 1993

B.S., Chemical Engineering, National University of Technology, Argentina, 1987

Appointments

Assistant Professor, Department of Food Science, Purdue University, 2003–pres
Faculty Member (courtesy), Agricultural and Biological Engineering Department,
Purdue University, 2003–pres

Instructor, School of Mechanical Engineering, Purdue University, 2002

Visiting Scientist, Whistler Center for Carbohydrate Research, Purdue University,
2000–2002

Research Interests

Food Engineering

Biological Engineering

Physicochemistry and Thermodynamics of Biomaterials and Bioprocess

Rheology, Micro-rheology and Interfacial Dynamics

Modeling and Computational Simulation

Book Chapter

Corvalan, CM; Campanella, OH. 2005. Food Rheology and Texture: Squeezing and Elongational Flow, in *Encyclopedia of Life Support Systems*, United Nations Educational, Scientific and Cultural Organization UNESCO Publishing, Paris, France.

Publications

Corvalan, CM; Saita, FA. 1991. Automatic stepsize control in continuation procedures. *Computers & Chemical Engineering* 15 (10): 729-739.

Di Paolo, J; Corvalan, CM; Saita, FA. 1995. Reynolds equation: integral vs. differential formulation. *International Journal of Numerical Methods in Engineering and Design* 11 (3): 303-322.

Corvalan, CM; Saita, FA. 1995. Blade Coating on a compressible substrate. *Chemical Engineering Science* 50 (11): 1769-1783.

- Corvalan, CM; Di Paolo, J; Saita, FA. 1999. Elasto-hydrodynamic lubrication of porous substrates: application to synovial joint analysis. *Computer Methods in Biomechanics and Biomedical Engineering* 2 (4): 309-320.
- Reid, JD; Corvalan, CM; Levine, L; Campanella, OH; Okos, MR. 2001. Estimation of final sheet width and the forces and power exerted by sheeting rolls. *Cereal Foods World* 46 (2): 63-69.
- Ubal, S; Corvalan, CM; Giavedoni, MD; Saita, FA. 2001. A numerical study on two-dimensional faraday waves, in *Computational Fluid and Solid Mechanics*, Bathe KJ, ed., Cambridge, MA, 1000-1003.
- Levine, L; Campanella, OH; Corvalan, CM; Okos, MR; Symes, ST. 2002. A model for the formation of multiple flakes during cereal flaking. *Cereal Foods World* 47 (6): 210-213.
- Levine, L; Corvalan, CM; Campanella, OH; Okos, MR. 2002. A model describing the two-dimensional calendaring of finite width sheets. *Chemical Engineering Science* 57 (4): 643-650.
- Reid, JD; Campanella, OH; Corvalan, CM; Okos, MR. 2003. The influence of power-law rheology on flow distributions in coathanger manifolds. *Polymer Engineering and Science* 43 (3): 693-703.
- Levine, L; Campanella, OH; Corvalan, CM; Okos, MR; Gonzalez, D. 2003. A model for predicting the aspect ratio of cereal flakes. *Cereal Foods World* 48 (6): 289-299.
- Levine, L; Campanella, C; Corvalan, C; Okos, M. 2004. A model for predicting forces and work inputs in cereal flaking. *Cereal Foods World* 49 (1): 11-19.
- Singh, PP; Maier, DE; Cushman, JH; Haghghi, K; Corvalan, C. 2004. Effect of viscoelastic relaxation on moisture transport in foods. Part I: solution of general transport equation. *Journal of Mathematical Biology* 49 (1): 1-19.
- Chen, G; Corvalan, C; Campanella, OH; Haley, TA. 2005. An improved method to estimate temperatures and lethality during the cooling stage of sterilized cylindrical cans. *Food And Bioprocesses Processing* 83 (C1): 36-42.
- Dravid, V; Songsermpong, S; Xue, ZJ; Corvalan, CA; Sojka, PE. 2006. Two-dimensional modeling of the effects of insoluble surfactant on the breakup of a liquid filament. *Chemical Engineering Science* 61 (11): 3577-3585.
- Mathias, K; Ismail, B; Corvalan, CM; Hayes, KD. 2006. Heat and pH effects on the conjugated forms of genistin and daidzin isoflavones. *Journal of Agricultural and Food Chemistry* 54 (20): 7495-7502.
- Selby, TL; Berzins, A; Gerrard, DE; Corvalan, CM; Grant, AL; Linton, RH. 2006. Microbial heat resistance of *Listeria monocytogenes* and the impact on ready-to-eat meat quality after post-package pasteurization. *Meat Science* 74 (3): 425-434.
- Haddish-Berhane, N; Nyquist, C; Haghghi, K; Corvalan, C; Keshavarzian, A; Campanella, O; Rickus, J; Farhadi, A. 2006. A multi-scale stochastic drug release model for polymer-coated targeted drug delivery systems. *Journal of Controlled Release* 110 (2): 314-322.

Chen, GB; Campanella, OH; Corvalan, CM. 2007. A numerical algorithm for calculating microbial survival curves during thermal processing. *Food Research International* 40 (1): 203-208.

Banerjee, P; Morgan, MT; Rickus, JL; Ragheb, K; Corvalan, C; Robinson, JP; Bhunia, AK. 2007, Hybridoma Ped-2E9 cells cultured under modified conditions can sensitively detect *Listeria monocytogenes* and *Bacillus cereus*. *Applied Microbiology and Biotechnology* 73 (6): 1423-1434.

Chen, G., C. Corvalan, T. Haley, O. Campanella. 2007. Development and validation of a numerical heat transfer model for post-packaged pasteurization of sliced bologna, *International Journal of Modelling, Identification and Control*, accepted.