

Curriculum Vitae

Vito L. Punzi, Ph.D., P.E.

Department of Chemical Engineering

Villanova University

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Education

- 1979 Ph.D. in Chemical Engineering
Minor in Civil/Environmental Engineering
Polytechnic Institute of New York* Brooklyn NY
- 1974 M.S. in Chemical Engineering
Polytechnic Institute of New York* Brooklyn NY
- 1972 B.S. in Chemical Engineering (cum laude)
Polytechnic Institute of Brooklyn* Brooklyn NY
- *now Polytechnic University of NYU

Academic Experience

9/80 - present Villanova University, Department of Chemical Engineering, Villanova PA
Assistant Professor (1980-87); Associate Professor (1987-90);
Professor of Chemical Engineering (1990 to present)

Honors and Awards:

2004 Lindback Award (Outstanding Teaching at Villanova University)
1998 Lindback Award (Honorable Mention)
1989 Farrell Award (Outstanding Service to the College of Engineering)

Teaching Interests (recent courses):

Undergraduate Chemical Engineering:

Chemical Process Calculations
Chemical Engineering Thermodynamics
Industrial Liquid & Solid Waste Treatment
Transport Phenomena
Chemical Engineering Lab I, II
Chemical Engineering Research I, II
Catholic Social Thought and the Engineer
Freshman EGR Interdisciplinary Project

Graduate Chemical Engineering:

Fluid Dynamics
Process Control Theory
Industrial Waste Management
Applied Math for Chemical Engineers
MSChE Thesis

Undergraduate Civil/Environmental Eng

Environmental Engineering Capstone Design

Research Interests:

Ongoing basic research interest includes the theoretical and applied aspects of traditional chemical engineering separation processes that can be applied in industrial and hazardous waste treatment. Primary ongoing interest is in adsorption, a process that is currently used extensively as an industrial wastewater and hazardous waste treatment process. In the past, performed research on numerous Villanova projects that were funded by industry and governmental agencies, including projects in the areas of reverse osmosis (membrane) separation technology (funded by NSF), mercury removal from a pharmaceutical waste; and health risk assessment associated groundwater contamination.

Current specific research projects include experimental and mathematical (modeling) investigations of the adsorption of heavy metals such as cadmium, copper, lead and mercury onto adsorbents such as activated carbon, synthetic polymeric adsorbents, and chitosan, both in batch processes and in packed bed columns; experimental investigations on the use of coagulation and flocculation processes for the removal of nanoparticle materials from industrial wastewater streams; and, the use of water treatment plant residuals for use in stormwater control measures.

Publications:

Komlos, J., Welker A., Punzi, V., and Traver, R. (in press, 2013). "Feasibility Study of As Received and Modified (Dried/Baked) Water Treatment Plant Residuals for use in Stormwater Control Measures (SCMs)" *Journal of Environmental Engineering*.

Punzi, V. L., (2009). "Incorporation of the Principles of Catholic Social Teaching into the Undergraduate Engineering Curriculum", Occasional Papers: Catholic Social Teaching in the Classroom, Villanova University Office for Mission and Ministry, 17, Fall 2009, 16-21.

Tepe, N., Yurtsever, D., Duran, M., Mehta, R. J., Bruno C., and Punzi, V. L. (2008). "Odor Control during post-digestion processing of biosolids through bioaugmentation of anaerobic digestion", Water Science and Technology, 57(4), 589-594.

Duran, M., Tepe, N., Yurtsever, D., Punzi, V. L., Bruno, C. and Mehta, R.J. (2006). "Bioaugmenting anaerobic digestion of biosolids with selected strains of *Bacillus*, *Pseudomonas*, and *Actinomyces* species for increased methanogenesis and odor control", *Appl Microbiol Biotechnol.* 73, 960-966.

Punzi, V.L., Muldowney, G. P. and Hunt, K. B. (1990). "Study of Solute Rejection Models for Thin Film Composite Polyamide RO Membranes", *J Membrane Science*, 52, 19-41.

Punzi, V.L., Muldowney, G. P. and Hull, T. J. (1990). "An Evaluation of RO Solute Rejection Model Performance at Elevated Pressure and High Feed Concentration", *Ind. Eng. Chem. Research*, 29(2), 278-282.

Punzi, V. L., Hunt, K. B. and Muldowney, G. P. (1990). "A Comparison of Solute Rejection Models in Reverse Osmosis Membranes. 2. System Water-Sodium Chloride-Asymmetric Polyamide", *Ind. Eng. Chem. Research*, 29(2), 259-263.

Punzi, V. L. and Stober, M.R (1989). "The Suitability of Ion Exchange Resins for the Removal of Cadmium from Wastewaters. Part III. Effect of Adsorbent Dose", *Water Poll. Contr. Assoc. of Pa. Magazine*, 22(6), 18-21.

Punzi, V. L. and Hoffman, D.R. (1989). "The Suitability of Ion Exchange Resins for the Removal of Cadmium from Wastewaters. Part II. Evaluation of Adsorbents", *Water Poll. Contr. Assoc. of Pa. Magazine*, 22(4), 7-9.

Punzi, V. L. and Edwards, P. J. (1989). "The Suitability of Ion Exchange Resins for the Removal of Cadmium from Wastewaters. Part I. Selection of Resins", *Water Poll. Contr. Assoc. of Pa. Magazine*, 22(3), 20-23.

Muldowney, G. P. and Punzi, V. L. (1988). "A Comparison of Solute Rejection Models in Reverse Osmosis Membranes. System: Water- Sodium Chloride-Cellulose Acetate", *Ind. Eng. Chem. Research*, 27(12), 2341-2352.

Punzi, V.L. and Muldowney, G. P (1987). "An Overview of Proposed Solute Rejection Mechanisms in Reverse Osmosis", *Rev. Chem. Eng.*, 4(1-2), 1-40.

Punzi, V. L. (1987). "A First Chemical Engineering Lab Experience", *Chemical Engineering Education*, 21(3), 146-149.

Punzi, V. L. and Nebens, B. M. (1986). The Chemistry of Seawater Chlorination, in: J. R. Pfafflin and E. N. Ziegler (eds.), *Advances in Environmental Science and Engineering*, Volume 5, Gordon and Breach.

Punzi, V. L. and Patel, R. D. (1985). Predicting Chlorine Compounds Power Plant Cooling Tower Systems, in: R. L. Jolley, et. al. (eds.), *Water Chlorination: Chemistry, Environmental Impact and Health Effects*, Volume 5, Lewis Publishers, Inc., Chelsea, MI.

Punzi, V. L. and Patel, R. D. (1981). Recent Advances in Chlorination, in: J. R. Pfafflin and E. N. Ziegler (eds.), *Advances in Environmental Science and Engineering*, Volume 4, Gordon and Breach, Inc.

Recent Conference Proceedings and Presentations:

J. Komlos, A. Welker, V. Punzi, and R. Traver, "Use of Modified Water Treatment Plant Residuals to Improve the Performance of Stormwater Control Measures (SCMs)", *Proceedings of the World Environmental and Water Resources Congress*, Cincinnati, Ohio, May 19-23, 2013, Presentation 663.

N. Tepe, D. Yurtsever, R. J. Mehta, C. Bruno, V. L. Punzi, and M. Duran, "Odor Control during Post-digestion Processing of Biosolids through Bioaugmentation of Anaerobic Digestion", *Proceedings of the Moving Forward Wastewater Biosolids Sustainability: Technical, Managerial, and Public Synergy Conference*, Moncton, New Brunswick, Canada, June 24-27, 2007, 779-785.

Other Recent Presentations:

V. L. Punzi, "Incorporation of the Principles of Catholic Social Teaching into the Undergraduate Engineering Curriculum", presented at the Catholic Social Teaching Workshops hosted by the Villanova University Office for Mission and Ministry: May and June 2009, May and June 2010, May and June 2011; May and June 2012; May 2013

V. L. Punzi, "Engineering Ethics in Current Undergraduate Engineering Courses: Chemical Process Calculations", presented at the May 14, 2009 Ethics Workshop for Engineering Faculty hosted by the Villanova University College of Engineering.

Recent (Selected) Technical Reports:

"Technical Advisory Group (TAG) Comments on the Environ Corporation July 2002 Final 'Health Risk Assessment for Subsurface Hydrocarbon Contamination'", Submitted to DLA, the PA Dept. of Environmental Protection (PADEP), Environ and the Community Action Work Group; September 2002.

Service Activities:

Chemical Engineering Department:

- Chemical Engineering Department Graduate Program Director (since ~1995; ongoing)
- Chemical Engineering Department Graduate Student Advisor (since 1985; ongoing)
- Chemical Engineering Department Graduate Committee Chair (since 1985; ongoing)
- ABET Annual Student Outcomes Assessment Process Coordinator (since 2001; ongoing)
- ABET Self-Study Report Preparation (2008, 2013-in preparation)
- ChE Senior Research Project Assignment Coordinator (since 1993; ongoing)
- Faculty Search Committee Chair (1988, 1991, 1995, 1996, 1998, 1999)
- Faculty Search Committee member (2006, 2007, 2008, 2009, 2010, 2011)
- AIChE Student Chapter Advisor (1981 to 1993)
- ChE Department Rank and Tenure Committee (1987, 1990, 1993 to 1998)
- ChE Department 3rd Year Review Committee (2001, 2002, 2013)
- CEE Department 3rd Year Review Committee (2002)
- ME Department Rank and Tenure Committee (1995)

College of Engineering:

- College of Engineering Undergraduate Admissions Committee (since 1992; ongoing)
- College of Engineering Graduate Committee (2006 and since 2008; ongoing)
- College of Engineering Dean Search Committee (2005, 2006)
- College of Engineering Rank and Tenure Committee (1991, 1992)
- College of Engineering Presidential Scholar Selection Committee Chair (1993 to 1996, 1999)
- University Presidential Scholar Selection Committee (1991)
- Philadelphia Region Introduction of Minorities to Engineering (PRIME) Program Volunteer (1991 to 1994)

University:

- University Rank and Tenure Committee (since 1998; ongoing)
- Lindback Teaching Award Selection Committee (2005 to 2010)
- Campus Ministry (intermittent since 1994; ongoing)
- Committee on Social Responsibility Proxy Votes (since 2007; ongoing)
- Search Committee for the Dean of the College of Engineering (1999, 2000, 2001, 2006)
- University Senate (1987 to 1993)
- University Senate Executive Committee (1991 to 1993)
- University Senate Student Life Committee (1981 to 1991)
- University Faculty (Summer) Research Grants Committee (1982 to 1995; 1998 to 1999)
- Faculty Council (later, Faculty Senate) (1988 to 1991)

Professional Service (current):

- Reviewer: Water Science and Technology

Community Service:

- Annunciation B.V.M. (Havertown PA) Parish, Extraordinary Minister of the Eucharist (since 1992; ongoing)
- Haverford Township (PA) Superfund Site (1996 to 2008): various community advisory activities

Professional Society Memberships

Licensed Professional Engineer, Pennsylvania and New York

American Institute of Chemical Engineers

Sigma Xi, the Scientific Research Society

Tau Beta Pi, the Engineering Honor Society

Omega Chi Epsilon, the Chemical Engineering Honor Society

Previous Industrial/Other Experience

9/78 - 8/80; Envirosphere Company, a division of Ebasco Services, Inc.,

10/73 - 8/77 New York, NY

Principal Water and Waste Management Engineer

Responsibilities included the performance of engineering and economic studies to determine a preferred solid waste disposal method for a coal-fired power plant, and the supervision and performance of scientific, engineering and economic investigations to assess the impact of emerging solid waste management legislation on the electric utility industry. Other responsibilities and assignments included the preparation of water quality, water use and water management studies for existing fossil fuel-fired facilities and preparation of various sections of environmental reports and water quality reports for nuclear generating facilities.

9/77 - 8/78 Polytechnic Institute of New York Brooklyn, NY

Teaching Fellow, Department of Chemical Engineering

Teaching assistant assignments included support to department faculty in the following course areas: Transport Phenomena and Chemical Reactor Kinetics (undergraduate and graduate), Chemical Engineering Unit Operations Laboratory (undergraduate), Chemical Process Control and Chemical Engineering Thermodynamics (graduate).

6/72 - 9/73 Stauffer Chemical Company Ardsley, NY

Process Engineer

Responsibilities included chemical production supervision in the potassium nitrate and chemical biocide production units, chemical process modification, product quality control, analytical testing and preparation of water pollution reports for the various plant discharges.