Anthony Fick

201 Vairo Blvd. #167
State College, PA 16803
(703) 850-4518
Email: adf111@psu.edu

The Pennsylvania State University
118 Fenske Lab
University Park, PA 16802
(814) 863-4639

EDUCATION:

The Pennsylvania State University   **University Park, PA**
Ph.D. Chemical Engineering, expected May 2005
Dissertation: *Development of a Hybrid Volume of Fluid/Level Set Method to Simulate Multi-Phase Flows*
GPA: 3.82/4.00

The Pennsylvania State University   **University Park, PA**
B.S. in Chemical Engineering, May 1998
Graduated with Honors and Distinction
GPA: 3.64/4.00

RESEARCH EXPERIENCE:

The Pennsylvania State University – Department of Chemical Engineering

Ph.D. *Development of a Hybrid Volume of Fluid/Level Set Method to Simulate Multi-Phase Flows*
Advisor: Dr. Ali Borhan - Professor of Chemical Engineering

- *Volume of Fluid Method*– Numerical method of tracking surface by moving tracer fluid
- *Level Set Method*- Numerical interface method using normal distance from the surface
- *Simulation Code*- Fortan code combining both methods to simulate flows of drops in tubes
- *Buoyancy Driven Flow*- Drop deformations for various flow conditions
- *Pressure Driven Flow*- Reformulation of code to obtain deformations with imposed pressure drop
- *Non-Newtonian Fluids*- Generalized code for Power Law suspending fluid
- *Cluster Start up*- Set up/maintenance of Atipa 21 node high performance cluster

Comprehensive Topic – *A Numerical Simulation of Capillary Flow With Variable Capillary Geometries and Flow Conditions*
Advisor: Dr. Ali Borhan - Professor of Chemical Engineering

- *Slip Condition*- Develop relation to describe motion of two-phase line at stationary solid wall
- *Alternate Geometries*- Determine the effect capillary geometry has on meniscus shape, height, and time to reach equilibrium
- *Time Splitting Solution Method*- Method of solving Navier-Stokes equations simultaneously for pressure and velocity

Undergraduate Honors Topic: *Modeling Atmospheric Turbulence to Determine the Effects Preferential Concentration has on Cloud Formation*
Advisor: Dr. Lance Collins- Associate Professor of Chemical Engineering

- Included atmospheric dynamic equations to direct numerical simulation of Navier Stokes equations
- Modeled turbulence using preferential concentration developed by Collins group
- Programming in Fortran
- Use of VI Editor to manipulate sections of code

APPOINTMENTS:	**Sytstems Administrator**	Aug.1999-Present

Penn State Chemical Engineering Department
- Oversaw all UNIX machines in the Chemical Engineering department
- Setup and administration of 21 node ATIPA Linux cluster
- Provided technical support to faculty and students
- Installed all needed hardware and software
- Maintained user accounts

Teaching Assistant

Chemical Engineering 302A: Process Fluid Mechanics — Fall 2004
- Graded exams

Chemical Engineering 450: Process Dynamics and Control — Fall/Spring 2000
- Designed experiment utilizing control theory to keep height level of an unsteady state tank
- Facilitated greater understanding of material through office hours
- Maintained database of student grades on all exams and assignments
- Proctored and graded exams

Chemical Engineering 302: Principles of Chemical Engineering 2 — Fall 1999
- Graded exams

COMPUTER SKILLS:
- Several operating systems- UNIX, LINUX and all MS Windows
- Program simulations in Fortran, Fortran90, and C++ languages
- Software packages MathCAD and MS Office
- HYSIS- dynamic simulator
- Control Station- process control simulator

AWARDS & ACTIVITIES:

Penn State Academic Computing Fellowship- $15,000/year for 3 years

Walter and Aura Lee Supina Graduate Fellowship- $1500

College of Engineering Scholarship- Half tuition to PSU ~$2500/year

University Scholars Program Scholarship- Half tuition to PSU ~$2500/year

Treasurer, Penn State Power Volleyball Club 2000-2004

Judge for the Pennsylvania Junior Academy of Science 2002-2003

Golden Key National Honor Society 1998-present

Phi Eta Sigma Honor Society 1998-present

Eagle Scout

PUBLICATIONS & PRESENTATIONS:

A. D. Fick & A. Borhan. "*Effects of Geometry and Fluid Properties on Capillary Flow Fields*" (in progress)

A. D. Fick & A. Borhan. "*A Parametric Study of Drop Deformations During Buoyancy Driven Motion at Finite Reynolds Numbers*" (in progress)

Poster presentation: Pennsylvania State University Computation Day February 17 2005

Poster presentation: Pennsylvania State University Graduate Exhibition March 20 2005