

## James F. Amundson

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Dr. James Amundson received his Ph.D. in Theoretical Particle Physics from the University of Chicago in 1993. He then pursued his research in QCD and the production and decays of heavy quarks as a postdoc and a visiting assistant professor at the University of Wisconsin, Madison and as a postdoc at Michigan State University. He joined the Fermilab Computing Division in 1998. In 2002 he joined the Advanced Accelerator SciDAC project. He is the co-architect and primary author of accelerator modeling tool Synergia.

### Education

- Ph.D. in Physics, University of Chicago, 1993
- B.S., *Summa cum Laude*, in Physics, University of Minnesota 1989

### Professional Experience

- Computer Professional, Fermi National Accelerator Laboratory, September 1998 – present
- Postdoctoral Research Associate, Michigan State University, September 1996 – August 1998
- Visiting Assistant Professor of Physics, University of Wisconsin, Madison, January 1994 – August 1996
- Postdoctoral Research Associate, University of Wisconsin, Madison, September 1993 – December 1993

### Selected Recent Publications and Presentations

1. **“An experimentally robust technique for halo measurement using the IPM at the Fermilab Booster”**  
J. Amundson, W. Pellico, P. Spentzouris, T. Sullivan and L. Spentzouris  
Nucl. Instrum. Meth. A **570**, 1 (2007)
2. **“Synergia: An advanced object-oriented framework for beam dynamics simulation”**  
D. R. Dechow, P. Stoltz, J. F. Amundson and P. Spentzouris  
PAC-2005-TPAT026  
*Prepared for Particle Accelerator Conference (PAC 05), Knoxville, Tennessee, 16-20 May 2005*
3. **“Synergia: An accelerator modeling tool with 3-D space charge”**  
J. F. Amundson, P. Spentzouris, J. Qiang and R. Ryne  
J. Comput. Phys. **211**, 229 (2006)

4. **“Synergia: a hybrid, parallel 3D space charge code with circular machine modeling capabilities”**  
J. Amundson and P. Spentzouris  
*Presented at the 7th International Computational Accelerator Physics Conference (ICAP 2002), Saint-Petersburg, Russia, June 29 - July 2, 2004.*
5. **“Synergia: A hybrid, parallel beam dynamics code with 3D space charge”**  
J. Amundson and P. Spentzouris  
FERMILAB-CONF-03-126-E  
*Presented at Particle Accelerator Conference (PAC 03), Portland, Oregon, 12-16 May 2003*
6. **“Calibration of the FNAL Booster ionization profile monitor”**  
J. Amundson, J. Lackey, P. Spentzouris, G. Jungman and L. Spentzouris  
Phys. Rev. ST Accel. Beams **6**, 102801 (2003)
7. **“Large-Scale Simulation of the FNAL Booster and Comparison with Experiment”**  
J. Amundson and P. Spentzouris  
*Invited talk at the 7th International Computational Accelerator Physics Conference (ICAP 2002), East Lansing, Michigan, October 15-18, 2002.*