

## Ronald Ruth

Professor of Particle Physics and Astrophysics, Emeritus  
SLAC General Program

### Bio

---

#### ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, SLAC General Program

### Publications

---

#### PUBLICATIONS

- **Hard X-ray phase-contrast imaging with the Compact Light Source based on inverse Compton X-rays** *JOURNAL OF SYNCHROTRON RADIATION*  
Bech, M., Bunk, O., David, C., Ruth, R., Rifkin, J., Loewen, R., Feidenhans'l, R., Pfeiffer, F.  
2009; 16: 43-47
- **Fully coherent x-ray pulses from a regenerative-amplifier free-electron laser** *PHYSICAL REVIEW LETTERS*  
Huang, Z. R., Ruth, R. D.  
2006; 96 (14)
- **Coherent synchrotron radiation in storage rings** *Workshop on Physics and Applications of High Brightness Electron Beams*  
Venturini, M., Warnock, R., Ruth, R.  
WORLD SCIENTIFIC PUBL CO PTE LTD.2003: 292–303
- **Status of x-band standing wave structure studies at SLAC** *20th Biennial Particle Accelerator Conference*  
Dolgashev, V. A., Adolphsen, C., Burke, D. L., Bowden, G., Jones, R. M., Lewandowski, J., Li, Z., Loewen, R., Miller, R. H., Ng, C., Pearson, C., Ruth, R. D., Tantawi, et al  
IEEE.2003: 1264–1266
- **An ultra-high gradient Plasma Wakefield booster** *9th Workshop on Advanced Accelerator Concepts*  
Chen, P., Cheshkov, S., Ruth, R., Tajima, T.  
AMER INST PHYSICS.2001: 903–913
- **Effects of focusing on radiation damping and quantum excitation in electron storage rings** *PHYSICAL REVIEW LETTERS*  
Huang, Z. R., Ruth, R. D.  
1998; 80 (11): 2318-2321
- **Laser-electron storage ring** *PHYSICAL REVIEW LETTERS*  
Huang, Z. R., Ruth, R. D.  
1998; 80 (5): 976-979
- **A 30 GHz 5-TeV linear collider** *PROCEEDINGS OF THE 1997 PARTICLE ACCELERATOR CONFERENCE, VOLS 1-3*  
Delahaye, J. P., Guignard, G., Irwin, J., Raubenheimer, T. O., Ruth, R. D., Wilson, I., Wilson, P. B.  
1998: 482-484
- **Analysis and application of microwave radiation from the damping manifolds of the SLAC damped detuned structures (DDS)** *PROCEEDINGS OF THE 1997 PARTICLE ACCELERATOR CONFERENCE, VOLS 1-3*  
Jones, R. M., Seidel, M., Kroll, N. M., Miller, R. H., Adolphsen, C., Bane, K. L., Ruth, R. D., Wang, J.  
1998: 554-556

- **Recent results & plans for the future on SLAC damped detuned structures (DDS)** *7th Workshop on Advanced Accelerator Concepts (AAC 96)*  
Kroll, N. M., Jones, R. M., Adolphsen, C., Bane, K. L., Fowkes, W. R., Ko, K., Miller, R. H., Ruth, R. D., Seidel, M., Wang, J. W.  
AMER INST PHYSICS.1997: 455–64
- **Analysis and application of manifold radiation in DDS 1: First experiences** *7th Workshop on Advanced Accelerator Concepts (AAC 96)*  
Jones, R. M., Kroll, N. M., Seidel, M., Adolphsen, C., Bane, K. L., Fowkes, W. R., Ko, K., Miller, R. H., Ruth, R. D., Wang, J. W.  
AMER INST PHYSICS.1997: 465–72
- **Suppression of radiation excitation in focusing environment** *7th Workshop on Advanced Accelerator Concepts (AAC 96)*  
Huang, Z. R., Ruth, R. D.  
AMER INST PHYSICS.1997: 254–62
- **A semi-classical treatment of channeling radiation reaction** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS*  
Huang, Z. R., Chen, P. S., Ruth, R. D.  
1996; 119 (1-2): 192-198
- **Active radio frequency pulse compression using switched resonant delay lines** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*  
Tantawi, S. G., Ruth, R. D., Vlieks, A. E.  
1996; 370 (2-3): 297-302
- **Transverse multibunch instabilities for non-rigid bunches** *16th Biennial Particle Accelerator Conference*  
Berg, J. S., Ruth, R. D.  
IEEE.1996: 3076–3078
- **Design of a multi-megawatt X-band solid state microwave switch** *16th Biennial Particle Accelerator Conference*  
Tantawi, S. G., Lee, T. G., Ruth, R. D., Vlieks, A. E., Zolotarev, M.  
IEEE.1996: 1584–1586
- **Design parameters for the damped detuned accelerating structure** *16th Biennial Particle Accelerator Conference*  
Ko, K., Bane, K., Gluckstern, R., Hoag, H., Kroll, N., Lin, X. T., Miller, R., Ruth, R., Thompson, K., Wang, J.  
IEEE.1996: 1058–1060
- **Test facilities for future linear colliders** *16th Biennial Particle Accelerator Conference*  
Ruth, R. D.  
IEEE.1996: 616–620
- **High gradient experiments on NLCTA accelerator structures** *XVIII International Linear Accelerator Conference*  
Wang, J. W., Eichner, J. P., Fant, K. H., HOAG, H. A., KOONTZ, R. F., LAVINE, T., LOEW, G. A., Loewen, R. J., MENEGAT, A., Miller, R. H., Nantista, C. D., Pearson, C., Ruth, et al  
C E R N.1996: 656–58
- **Radiation damping in focusing-dominated systems** *16th Biennial Particle Accelerator Conference*  
Huang, Z. R., Chen, P. S., Ruth, R. D.  
IEEE.1996: 3326–3328
- **SLAC/CERN high gradient tests of an X-band accelerating section** *16th Biennial Particle Accelerator Conference*  
Wang, J. W., LOEW, G. A., Loewen, R. J., Ruth, R. D., Vlieks, A. E., Wilson, I., Wuensch, W.  
IEEE.1996: 653–655
- **Active radio frequency pulse compression using switched resonant delay lines** *16th Biennial Particle Accelerator Conference*  
Tantawi, S. G., Ruth, R. D., Vlieks, A. E.  
IEEE.1996: 1581–1583
- **Channeling acceleration: A path to ultrahigh energy colliders** *Tamura Symposium on the Future of Accelerator Physics*  
Chen, P. S., Huang, Z. R., Ruth, R. D.  
AMER INST PHYSICS.1996: 331–43
- **Parameters of the SLAC next linear collider** *16th Biennial Particle Accelerator Conference*

- Raubenheimer, T., Adolphsen, C., Burke, D., Chen, P., Ecklund, S., Irwin, J., Loew, G., Markiewicz, T., Miller, R., Paterson, E., PHINNEY, N., Ross, M., Ruth, et al  
IEEE.1996: 698–700
- **Emittance and energy control in the NLC main linacs** *16th Biennial Particle Accelerator Conference*  
Adolphsen, C., Bane, K. L., Kubo, K., Raubenheimer, T., Ruth, R. D., Thompson, K. A., Zimmermann, F.  
IEEE.1996: 2989–2991
  - **Long-range wakefields and split-tune lattice at the SLC** *XVIII International Linear Accelerator Conference*  
Decker, F. J., ADOLPHSEN, C. E., Assmann, R., Bane, K., Kubo, K., Minty, M., Raimondi, P., Raubenheimer, T., Ruth, R., SPENCE, W. L.  
C E R N.1996: 140–42
  - **MEASUREMENT OF WAKE-FIELD SUPPRESSION IN A DETUNED X-BAND ACCELERATOR STRUCTURE** *PHYSICAL REVIEW LETTERS*  
Adolphsen, C., Bane, K., Higo, T., Kubo, K., Miller, R., Ruth, R., Thompson, K., Wang, J.  
1995; 74 (13): 2475-2478
  - **RADIATION REACTION IN A CONTINUOUS FOCUSING CHANNEL** *PHYSICAL REVIEW LETTERS*  
Huang, Z., Chen, P., Ruth, R. D.  
1995; 74 (10): 1759-1762
  - **Radiation and radiation reaction in continuous focusing channels** *6th Advanced Accelerator Concepts Workshop*  
Huang, Z. R., Chen, P. S., Ruth, R. D.  
AIP PRESS.1995: 646–658
  - **Manifold damping of the NLC detuned accelerating structure** *6th Advanced Accelerator Concepts Workshop*  
Kroll, N., Thompson, K., Bane, K., Gluckstern, R., Ko, K., Miller, R., Ruth, R.  
AIP PRESS.1995: 777–788
  - **COLLIMATION SYSTEMS FOR A TEV LINEAR COLLIDER** *PARTICLE ACCELERATORS*  
MERMINGA, N., Irwin, J., Helm, R., Ruth, R. D.  
1994; 48 (2): 85-108
  - **FULL-TURN SYMPLECTIC MAP FROM A GENERATOR IN A FOURIER-SPLINE BASIS** *1993 Computational Accelerator Physics Conference (CAP93)*  
Berg, J. S., Warnock, R. L., Ruth, R. D.  
AIP PRESS.1994: 413–418
  - **FULL-TURN SYMPLECTIC MAP FROM A GENERATOR IN A FOURIER-SPLINE BASIS** *1993 Particle Accelerator Conference*  
Berg, J. S., Warnock, R. L., Ruth, R. D., Forest, E.  
I E E E.1993: 291–293
  - **ACCELERATOR AND RF SYSTEM-DEVELOPMENT FOR NLC** *1993 Particle Accelerator Conference*  
Vlieks, A. E., CALLIN, R., DERUYTER, H., Early, R., FANT, K. S., FARKAS, Z. D., Fowkes, W. R., Galloway, C., HOAG, H. A., Koontz, R., LOEW, G. A., LAVINE, T. L., MENEGAT, et al  
I E E E.1993: 620–622
  - **SIMULATION AND COMPENSATION OF MULTIBUNCH ENERGY VARIATION IN NLC** *1993 Particle Accelerator Conference*  
Thompson, K. A., Ruth, R. D.  
I E E E.1993: 3693–3695
  - **ACCELERATOR STRUCTURE DEVELOPMENT FOR NLC** *1993 Particle Accelerator Conference*  
HOAG, H. A., DERUYTER, H., Pearson, C., Ruth, R. D., Wang, J. W., Schaefer, J.  
I E E E.1993: 907–909
  - **THE NEXT LINEAR COLLIDER TEST ACCELERATOR** *1993 Particle Accelerator Conference*  
Ruth, R. D., Adolphsen, C., Bane, K., Boyce, R. F., Burke, D. L., CALLIN, R., Caryotakis, G., CASSEL, R., Clark, S. L., DERUYTER, H., Fant, K., Fuller, R., Heifets, et al  
I E E E.1993: 543–545
  - **A HIGH-POWER SLED-II PULSE-COMPRESSION SYSTEM** *3rd European Particle Accelerator Conference*  
Kroll, N. M., FARKAS, Z. D., LAVINE, T. L., MENEGAT, A., Nantista, C., Ruth, R. D., Wilson, P. B.

EDITIONS FRONTIERES.1992: 327-329

- **STABILITY OF NONLINEAR HAMILTONIAN MOTION FOR A FINITE BUT VERY LONG-TIME** *PHYSICAL REVIEW LETTERS*  
Warnock, R. L., Ruth, R. D.  
1991; 66 (8): 990-993
- **4TH-ORDER SYMPLECTIC INTEGRATION** *PHYSICA D*  
Forest, E., Ruth, R. D.  
1990; 43 (1): 105-117
- **CONTROLLING TRANSVERSE MULTIBUNCH INSTABILITIES IN LINACS OF HIGH-ENERGY LINEAR COLLIDERS** *PHYSICAL REVIEW D*  
Thompson, K. A., Ruth, R. D.  
1990; 41 (3): 964-977
- **HIGH-GRADIENT ELECTRON-ACCELERATOR POWERED BY A RELATIVISTIC KLYSTRON** *PHYSICAL REVIEW LETTERS*  
Allen, M. A., Boyd, J. K., Callin, R. S., DERUYTER, H., EPPLEY, K. R., FANT, K. S., Fowkes, W. R., HAIMSON, J., HOAG, H. A., HOPKINS, D. B., Houck, T., KOONTZ, R. F., LAVINE, et al  
1989; 63 (22): 2472-2475
- **INVARIANT TORI THROUGH DIRECT SOLUTION OF THE HAMILTON-JACOBI EQUATION** *PHYSICA D-NONLINEAR PHENOMENA*  
Warnock, R. L., Ruth, R. D.  
1987; 26 (1-3): 1-36
- **SUPERCONVERGENT TRACKING AND INVARIANT SURFACES IN PHASE-SPACE** *IEEE TRANSACTIONS ON NUCLEAR SCIENCE*  
Ruth, R. D., Raubenheimer, T., Warnock, R. L.  
1985; 32 (5): 2206-2208
- **ACCELERATOR PHYSICS MEASUREMENTS AT THE DAMPING RING** *IEEE TRANSACTIONS ON NUCLEAR SCIENCE*  
Rivkin, L., Delahaye, J. P., Wille, K., Allen, M., Bane, K., Fieguth, T., Hofmann, A., Hutton, A., Lee, M., LINEBARGER, W., Morton, P., Ross, M., Ruth, et al  
1985; 32 (5): 2626-2628
- **STATUS OF THE SLC DAMPING RINGS** *IEEE TRANSACTIONS ON NUCLEAR SCIENCE*  
Hutton, A. M., DAVIESWHITE, W. A., Delahaye, J. P., Fieguth, T. H., Hofmann, A., Jager, J., Kloeppel, P. K., Lee, M. J., LINEBARGER, W. A., Rivkin, L., Ross, M., Ruth, R., SHOAE, et al  
1985; 32 (5): 1659-1661
- **A DIAGNOSTIC FOR DYNAMIC APERTURE** *IEEE TRANSACTIONS ON NUCLEAR SCIENCE*  
MORTON, P. L., Pellegrin, J. L., Raubenheimer, T., Rivkin, L., Ross, M., Ruth, R. D., SPENCE, W. L.  
1985; 32 (5): 2291-2293
- **A REVIEW OF POLARIZED PROTON-BEAM TECHNIQUES AND A REPORT ON THE WORKSHOP ON POLARIZED BEAMS** *JOURNAL DE PHYSIQUE*  
Ruth, R. D.  
1985; 46 (C2): 611-624
- **STABILITY IN DYNAMICAL-SYSTEMS .1.** *AIP CONFERENCE PROCEEDINGS*  
Courant, E. D., Ruth, R. D., Weng, W. T.  
1985: 294-343
- **A COMPARISON OF THE PLASMA BEAT WAVE ACCELERATOR AND THE PLASMA WAKE FIELD ACCELERATOR** *AIP CONFERENCE PROCEEDINGS*  
PISIN, C., Ruth, R. D.  
1985: 213-225
- **PLASMA LASER-ACCELERATOR - LONGITUDINAL DYNAMICS, THE PLASMA LASER INTERACTION, AND A QUALITATIVE DESIGN** *AIP CONFERENCE PROCEEDINGS*  
Ruth, R. D., Chao, A. W.  
1982: 94-111