



Sonja Dieterich, Ph.D.

Clinical Interests	I specialize in the medical physics of complex treatments and small-field dosimetry, with vast experience in frameless stereotactic radiosurgery and stereotactic body radiotherapy and an interest in image-guided high-dose-rate (HDR) brachytherapy. My clinical research interests include improving image-guidance in HDR brachytherapy and in-vivo dosimetry to validate new dose calculation algorithms. As a medical physicist, I collaborate closely with physicians to determine the best use of advanced technology for each individual situation and contribute my technical expertise to support our patients' fight against cancer.
Title	Associate Professor Medical Physicist
Specialty	Cancer , Medical Physics, Radiation Oncology
Department	Radiation Oncology
Division	Radiation Oncology
Center/Program Affiliation	UC Davis Comprehensive Cancer Center
Languages	German
Education	Ph.D., Rutgers, The State University of New Jersey, Piscataway, NJ, 2002 M.S., Technical University Darmstadt, Darmstadt, 1998
Fellowships	Georgetown University, Washington D.C., 2002 Georgetown University Hospital, Washington D.C., 2003
Board Certifications	American Board of Radiology, Therapeutic Radiological Physics, 2006
Professional Memberships	American Association of Physicists in Medicine (AAPM) American College of Radiology (ACR) American Physical Society (APS) American Society of Therapeutic Radiation Oncology (ASTRO) Radiosurgery Society (RSS)
Honors and Awards	FDA, "Certificate for Outstanding Contribution on Promoting Patient Safety with Medical Devices", 2010 AAPM Medical Physics Travel Grant, 2007 6th Annual CyberKnife User's Meeting, "Most Outstanding Abstract", 2007



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3rd Annual CyberKnife User's Meeting, "Outstanding Technical Achievement Award", 2003

Select Recent Publications

- L. Wang, K. N. Kielar, E. Mok, A. Hsu, S. Dieterich and L. Xing, "An end-to-end examination of geometric accuracy of IGRT using a new digital accelerator equipped with onboard imaging system," *Phys Med Biol.* 2012; 57, 757-769.
- A. Ho, A. T. Lo, S. Dieterich, S. G. Soltys, I. C. Gibbs, S. G. Chang and J. R. Adler, "Trigeminal neuralgia treatment dosimetry of the Cyberknife," *Med Dosim* (2011).
- A. Schlaefler and S. Dieterich, "Feasibility of case-based beam generation for robotic radiosurgery," *Artif Intell Med* (2011).
- J. C. Hong, Y. Yu, A. K. Rao, S. Dieterich, P. G. Maxim, Q. T. Le, M. Diehn, D. Y. Sze, N. Kothary and B. W. Loo, Jr., "High retention and safety of percutaneously implanted endovascular embolization coils as fiducial markers for image-guided stereotactic ablative radiotherapy of pulmonary tumors," *Int J Radiat Oncol Biol Phys.* 2011; 81, 85-90.
- S. Dieterich, C. Cavedon, C. F. Chuang, A. B. Cohen, J. A. Garrett, C. L. Lee, J. R. Lowenstein, M. F. d'Souza, D. D. Taylor, Jr., X. Wu and C. Yu, "Report of AAPM TG 135: quality assurance for robotic radiosurgery," *Med Phys.* 2011; 38, 2914-2936.
- Murphy, J. D., Christman-Skieller, C., Kim, J., Dieterich, S., Chang, D. T. Koong, A. C. A Dosimetric Model of Duodenal Toxicity After Stereotactic Body Radiotherapy for Pancreatic Cancer. *Int J Radiat Oncol Biol Phys* (2010).
- S. Dieterich and G. W. Sherouse, "Experimental comparison of seven commercial dosimetry diodes for measurement of stereotactic radiosurgery cone factors," *Med Phys* 38, 4166-4173 (2011). A. Sawant, S. Dieterich, M. Svatos and P. Keall, "Failure mode and effect analysis-based quality assurance for dynamic MLC tracking systems," *Med Phys.* 2010; 37, 6466-6479.
- Minn AY, Schellenberg D, Maxim P, Dieterich S, et al. Pancreatic Tumor Motion on a Single Planning 4D-CT Does Not Correlate With Intrafraction Tumor Motion During Treatment. *Am J Clin Oncol* 2009.
- Wiersma RD, Riaz N, Dieterich S, et al. Use of MV and kV imager correlation for maintaining continuous real-time 3D internal marker tracking during beam interruptions. *Phys Med Biol* 2009; 54:89-103.
- Wu, X., Dieterich, S. Orton, C. G. Point/counterpoint. Only a single implanted marker is needed for tracking lung cancers for IGRT. *Med Phys.* 2009; 36, 4845-4847.

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