

CURRICULUM VITAE RICHARD P. LEVY

Education		
1969 – 1970	Queens College, Queens, NY	
1970 – 1973	Hofstra University, Hempstead, NY	B.A. (Biology) (magna cum laude)
1973 - 1975	Hofstra University, Hempstead, NY	M.A. (Biology)
1976 – 1980	Boston University, Boston, MA	M.D.
1983 - 1991	University California, Berkeley, CA	Ph.D. (Biophysics)

Professional and Academic Appointments

07/1980 - 06/1981 Dept. of Medicine, Childrens Hospital, San Francisco, CA: **Intern**

07/1981 - 06/1983 Dept. of Medicine, Childrens Hospital, San Francisco, CA: **Resident**

07/1982 - 06/1983 Dept. of Medicine, Childrens Hospital, SF, CA: **Chief Resident**

11/1982 - 06/1995 Dept. of Medicine, Laguna Honda Hosp, SF, CA: **Attending Physician**

07/1983 - 01/1991 Dept. of Emergency Medicine, Davies Med Cntr, SF, CA: **Attending Physician**

06/1987 - 06/1995 Research Medicine & Radiation Biophysics, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA: **Medical Scientist**

08/1990 - 12/1998 Department of Radiology, School of Medicine, University of California, San Francisco, CA: **Assistant Adjunct Professor**

07/1994 - 06/1998 Department of Neurosurgery, Stanford University School of Medicine, Palo Alto, CA: **Assistant Clinical Professor**

08/1994 - 03/2000 Department of Radiation Medicine, Loma Linda University Medical Center, Loma Linda, CA: **Assistant Clinical Professor**

07/1995 - 12/1997 Department of Radiation Medicine, Loma Linda University Medical Center, Loma Linda, CA: **Resident & Chief Resident**

07/1995 - 12/2000 Division of Molecular Biology, Lawrence Berkeley National Laboratory, University of California, Berkeley, CA: **Guest Scientist**

06/1998 - 01/2004 Department of Neurosurgery, Stanford University School of Medicine, Palo Alto, CA: **Associate Clinical Professor**

03/2000 - 01/2009 Department of Radiation Medicine, Loma Linda University Medical Center,
Loma Linda, CA: **Professor**

Recent Radiation Oncology Work Assignments (selected)

08/2012 - 12/2012 **Attending Physician, Radiation Oncology:** Yuma Oncology Center,
Yuma, AZ. Working with IMRT/IGRT TomoTherapy and Xofig brachytherapy
equipment, and with PET-CT scanner.

02/2013 - 03/2013 **Attending Physician, Radiation Oncology:** Arizona Dermatology Center,
Show Low, AZ. Working with Xofig brachytherapy equipment.

05/2013 - 07/2013 **Attending Physician, Radiation Oncology:** RBGB Dermatology Center,
Santa Ana, CA. Working with Xofig brachytherapy equipment.

05/2013 - 08/2013 **Attending Physician, Radiation Oncology:** California Skin Institute,
Mountain View, CA. Working with Xofig brachytherapy equipment at four
affiliated clinics in Northern California.

07/2013 - 08/2013 **Attending Physician, Radiation Oncology:** Mercy Cancer Center, Merced, CA.
Working with IMRT/IGRT irradiation.

09/2013 - 11/2013 **Attending Physician, Radiation Oncology:** Havasu Regional Medical Center,
Lake Havasu City, AZ. Working with IMRT/IGRT irradiation.

11/2013 – 06/2015 **Attending Physician, Radiation Oncology:** Western Radiation Oncology,
Mountain View, CA (associated with AKSM, Columbus, OH). Working with Xofig
and Esteya brachytherapy equipment at multiple affiliated clinics in Southern
California.

02/2014 - 06/2015 **Attending Physician, Radiation Oncology:** Ahwatukee Skin & Laser, LLC,
Phoenix, AZ. Working with Xofig brachytherapy equipment (with HealthWest
Partners, Inc).

10/2014 – 06/2015 **Attending Physician, Radiation Oncology:** Hawaii Skin Cancer Center,
Honolulu, CA. Working with Xofig brachytherapy equipment (with
HealthWest Partners, Inc).

06/2015 - 07/2015 **Attending Physician, Radiation Oncology:** St. Joseph Hospital Medical Center,
Phoenix, AZ. Working with IMRT/IGRT irradiation.

07/2015 - 09/2015 **Attending Physician, Radiation Oncology:** Marquette General Hospital,
Marquette, MI. Working with IMRT/IGRT irradiation.

09/2015 - present **Attending Physician, Radiation Oncology:** Southwest Oncology Centers,
Scottsdale, AZ. Working with IMRT/IGRT irradiation, and with electron
irradiation and brachytherapy for non-melanoma skin cancers .
(AZ Facilities in Scottsdale, Phoenix, Yuma)

11/2016 – 07/2020 **Attending Physician, Radiation Oncology:** Kingman Regional Medical Center, Kingman AZ. Working with IMRT/IGRT irradiation.

Recent Foundation and Conference Positions (selected)

- 06/2005 - 2013 Advanced Beam Cancer Treatment Foundation, **Chief Medical Officer**
Lake Arrowhead, CA
- 07/2008 – present International Conference on the Application of **Organizer & Director**
Accelerators in Research and Industry (CAARI) **(Medical Applications)**
Fort Worth, TX

Research Activities (selected)

1993 – 1995	Heavy-Ion Radiosurgery Program Research Medicine and Radiation Biophysics Lawrence Berkeley National Laboratory University of California, Berkeley Funded: United States Dept. of Energy	Principal Investigator
1993 – 2004	Stereotactic Proton Irradiation Program: Collaborative Program of the Departments of Radiation Medicine, Loma Linda University, Neurosurgery and Radiology, Stanford University, Research Medicine, Lawrence Berkeley Laboratory, University of California	Director, Co-Investigator
1995 – 2004	Stereotactic Proton Therapy for Brain Metastases Department of Radiation Medicine Loma Linda University Medical Center Loma Linda, CA	Co-Investigator
1998 – 2004	Stereotactic Proton Radiosurgery Program Department of Radiation Medicine Loma Linda University Medical Center Loma Linda, CA	Director
1998 – 2004	Functional Proton Radiosurgery Program Department of Radiation Medicine Loma Linda University Medical Center Loma Linda, CA Funded: H.L. Guenther Foundation: \$1.485M	Principal Investigator

Academic Honors

- 1969 - 1973 Regents Scholarship: New York State
- 1991 Elizabeth Roboz Einstein Fellowship: Outstanding Graduate Student in
Neurosciences, Graduate Division, University of California, Berkeley

Scientific Journal Review

- 1989 - International Journal of Radiation Biology, Oncology and Physics
- 1993 - Radiation Research
- 1997 - Journal of Radiosurgery (Editorial Board)
- 1998 - Acta Oncologica
- 2008 - American Institute of Physics (Medical Applications Topic Editor: CAARI)
- 2009 - Reviews of Accelerator Science and Technology (RAST)
- 2012 - Translational Cancer Research

Certification

- 1983 American Board of Internal Medicine
- 1999 American Board of Radiology (Therapy) (last re-certified: October, 2011)

Licensure

- 1981 **National Board of Medical Examiners**
- 1981-2019 **California**
- 1981–present **Drug Enforcement Administration**
- 2013–present **Arizona**
- 2013–2019 **Michigan**
- 2014-2019 **Hawaii**

LLUMC Committees

1995 - 2004 Member, Radiation Medicine Research Committee

1998 – 2004 Member, Proton Safety Committee

Immediate Family

Donna M. Carpentier-Levy, wife (since 1980)
B.A., Hofstra University, 1974
M.A., Hofstra University, 1980

James D. Carpentier-Levy, son (born: August, 1982)

Victoria M. Carpentier-Levy (Sparkman), daughter (born: September, 1985)

Geoffrey P. Carpentier-Levy, son (born: January, 1989)

Books and Chapters

Fabrikant JI, Frankel KA, Phillips MH, **Levy RP**: Stereotactic heavy charged-particle Bragg peak radiosurgery for intracranial arteriovenous malformations. In Edwards MSB, Hoffman HJ (eds): *Cerebral Vascular Diseases in Children and Adolescents*, pp. 389-409, Williams & Wilkins, Baltimore, 1989.

Levy RP, Fabrikant JI, Frankel KA, Phillips MH, Lyman JT: Charged-particle radiosurgery of the brain. *Neurosurg Clin North Am* 1:955-990, 1990.

Rodriguez A, **Levy RP**, Fabrikant JI: Experimental central nervous system injury from charged particles. In Gutin PH, Leibel SA, Sheline GE (eds): *Radiation Injury to the Nervous System*, pp. 149-182, Raven Press, New York, 1991.

Levy RP: *Oligodendroglial Response to Ionizing Radiation: Dose and Dose-rate Response*. Ph.D. Thesis, University of California, Berkeley, 1991.

Fabrikant JI, **Levy RP**, Steinberg GK, Phillips MH, Frankel KA, Lyman JT, Marks MP, Silverberg GD: Charged-particle radiosurgery for intracranial vascular malformations. *Neurosurg Clin North Am* 3:99-139, 1992.

Lyman JT, Frankel KA, Phillips MH, **Levy RP**, Fabrikant JI: Radiation physics for particle beam radiosurgery. *Neurosurg Clin North Am* 3: 1-7, 1992.

Fabrikant JI, **Levy RP**: Radiation therapy of pituitary tumors. In Selman WR (ed): *Neuroendocrinology. Concepts in Neurosurgery Series No.5*, pp. 367-393, Williams

& Wilkins, Baltimore, 1992.

Levy RP, Lo EH, Fabrikant JI: Biologic basis for stereotactic radiosurgery. In Phillips MH (ed): *Physical Aspects of Stereotactic Radiosurgery*, pp. 189-238, Plenum Publishing, New York, 1993.

Levy RP, Fabrikant JI: Medical applications of stereotactic radiosurgery. In Phillips MH (ed): *Physical Aspects of Stereotactic Radiosurgery*, pp 239-278, Plenum Publishing, New York, 1993.

Levy RP, Fabrikant JI: Frankel KA: Particle-beam irradiation of the pituitary gland. In Alexander E, Loeffler JS, Lunsford LD (eds): *Stereotactic Radiosurgery*, pp. 157-165, McGraw-Hill, New York, 1993.

Frankel KA, **Levy RP**, Fabrikant JI, Phillips MH: Heavy-charged-particle radiosurgery: Rationale and method. In Alexander E, Loeffler JS, Lunsford LD (eds): *Stereotactic Radiosurgery*, pp. 87-103, McGraw-Hill, New York, 1993.

Steinberg GK, **Levy RP**, Marks MP, Fabrikant JI: Vascular malformations: Charged-particle radiosurgery. In Alexander E, Loeffler JS, Lunsford LD (eds): *Stereotactic Radiosurgery*, pp. 122-135, McGraw-Hill, New York, 1993.

Levy RP, Frankel KA, Steinberg GK: Radiosurgery with ion beams. In Linz U (ed): *Ion Beams in Tumor Therapy*, pp. 142-154, Chapman & Hall, London, 1995.

Levy RP, Fabrikant JI, Steinberg GK, Frankel KA: Charged-particle irradiation of intracranial lesions. In Wilkins RH, Rengachary SS (eds): *Neurosurgery. Second Edition*, pp. 1867-1886, McGraw-Hill, New York, 1996.

Steinberg GK, Marks MP, **Levy RP**: Intracranial Arteriovenous Malformation: Therapeutic Options. In Batjer HH (ed), *Cerebrovascular Disease*, pp. 727-742, Lippincott-Raven Press, New York, 1997.

Chang SD, Steinberg GK, **Levy RP**, Marks MP, Frankel KA, Shuster DL, Marcellus ML: Microsurgical resection of incompletely obliterated intracranial arteriovenous malformations following stereotactic radiosurgery. In Fukui M (ed): *Recent Progress in Cerebrovascular Surgery: Proceedings of the 5th International Workshop on Cerebrovascular Surgery*, Fukuoka, Japan, Neurologia Medico- Chirurgica, 38:200-207, 1998.

Steinberg GK, Marks MP, **Levy RP**, Fabrikant JI: Multimodality treatment of vascular malformations in functional brain areas, using stereotactic radiosurgery, embolization and microsurgery. In Yamada S (ed): *Arteriovenous Malformations in Functional Areas of the Brain*, pp.181-196, Futura Publishing, Armonk, NY, 1999.

Chang SD, **Levy RP**, Marks MP, Marcellus M, Steinberg GK: The Role of Radiosurgery in the Treatment of Giant Arteriovenous Malformations, pp. 42-53. In Kondziolka D (ed), *Radiosurgery* (Vol. 4), Karger, Basel, 2002.

Chang SD, **Levy RP**, Martin DP, Steinberg GK, Adler JR Jr.: Cavernous malformation radiosurgery. In: Pollock BE (ed): *The Technique and Evaluation of Contemporary Stereotactic Radiosurgery*. Futura Publishing Co., Inc., Armonk, New York, 2002, pp 139–153.

Levy RP: *Ride The Storms: Lessons of the Journey Taken on a Road Less Traveled*. (Autobiographical Memoirs); Lulu Press: Raleigh, NC, 2011.

Publications

Marks MP, DeLaPaz RL, Fabrikant JI, Frankel KA, Phillips MH, **Levy RP**, Enzmann DR: Imaging of charged-particle stereotactic radiosurgery for intracranial vascular malformations. Part I. Therapeutic Results. *Radiology* 168:447-455, 1988.

Marks MP, DeLaPaz RL, Fabrikant JI, Frankel KA, Phillips MH, **Levy RP**, Enzmann DR: Imaging of charged-particle stereotactic radiosurgery for intracranial vascular malformations. Part II. Complications. *Radiology* 168:457-462, 1988.

Levy RP, Fabrikant JI, Frankel KA, Phillips MH, Lyman JT: Stereotactic heavy-chargedparticle Bragg peak radiosurgery for the treatment of intracranial arteriovenous malformations in childhood and adolescence. *Neurosurgery* 24:841-852,1989.

Fabrikant JI, **Levy RP**, Phillips MH, Frankel KA, Lyman JT: Neurosurgical applications of ion beams. *Nucl Instrum Methods Phys Res B40/41*: 1376-1384, 1989.

Phillips MH, Frankel KA, Lyman JT, Fabrikant JI, **Levy RP**: Heavy-charged-particle stereotactic radiosurgery: Cerebral angiography and CT in the treatment planning of intracranial vascular malformations. *Int J Radiat Oncol BioI Phys* 17:419-426, 1989.

Fabrikant JI, Frankel KA, Phillips MH, **Levy RP**, Lyman JT: Heavy-charged-particle Bragg peak radiosurgery for intracranial arteriovenous malformations. In *Proceedings of EULIMA Workshop, Potential Value of Light Ion Beam Therapy*, pp 233-245, Nice, France, 1989.

Phillips MH, Frankel KA, Lyman JT, Fabrikant JI, **Levy RP**: Comparison of different radiation types and irradiation geometries in stereotactic radio surgery. In *Proceedings of EULIMA Workshop, Potential Value of Light Ion Beam Therapy*, pp 271-294, Nice, France, 1989.

Levy RP, Fabrikant JI, Lyman JT, Frankel KA, Phillips MH, Lawrence JH, Tobias CA: Clinical results of stereotactic helium-ion radiosurgery of the pituitary gland at Lawrence Berkeley Laboratory. In *Proceedings of The International Workshop on Proton and Narrow Photon Beam Therapy*, pp. 38-42, Oulu, Finland, 1989.

Fabrikant JI, **Levy RP**, Frankel KA, Phillips MH, Lyman JT, Chuang FYS, Steinberg GK, Marks MP: Stereotactic helium-ion radiosurgery for the treatment of intracranial arteriovenous malformations. In *Proceedings of The International Workshop on Proton and Narrow Photon Beam Therapy*, pp. 33-37, Oulu, Finland, 1989.

- Lyman, JT, Phillips MH, Frankel KA, Fabrikant JI, **Levy RP**: Heavy charged-particle beams for stereotactic radiosurgery. In Proceedings of *The International Workshop on Proton and Narrow Photon Beam Therapy*, pp. 43-47, Oulu, Finland, 1989.
- Fabrikant JI, **Levy RP**, Phillips MH, Frankel KA, Lyman JT, Steinberg GK, DeLaPaz RL, Marks MP, Chuang FYS: Clinical results of stereotactic heavy-charged-particle radiosurgery for intracranial arteriovenous malformations. Lawrence Berkeley Laboratory Report No. 28252, 1989.
- Phillips MH, Frankel KA, Lyman JT, Fabrikant JI, **Levy RP**: Comparison of different radiation types and irradiation geometries in stereotactic radio surgery. *Int J Radiat Oncol Bioi Phys* 18:211-220, 1990.
- Steinberg GK, Fabrikant JI, Marks MP, **Levy RP**, Frankel KA, Phillips MH, Shuer LM, Silverberg GD: Stereotactic heavy-charged-particle Bragg-peak radiation for intracranial vascular malformations. *N Engl J Med* 323:96-101,1990.
- Phillips MH, Frankel KA, Tjoa T, Lyman JT, Fabrikant JI, **Levy RP**: Effects of target size on the comparison of photon and charged particle dose distributions. In Proceedings of *The International Heavy Particle Therapy Workshop*, Paul Scherrer Institute, pp 24-26, Villigen, Switzerland, 1990.
- Fabrikant JI, **Levy RP**, Steinberg GK, Silverberg GD, Frankel KA, Phillips MH, Lyman JT: Heavy-charged-particle radiosurgery for intracranial vascular disorders: Clinical results of 350 patients. In Proceedings of *The 2nd European Particle Accelerator Conference*, pp S61-S63, Nice, France, 1990.
- Levy RP**, Fabrikant JI, Frankel KA, Phillips MH, Lyman JT, Lawrence JH, Tobias CA: Heavy-charged-particle radiosurgery of the pituitary gland: Clinical results of 840 patients. In Proceedings of *The 2nd European Particle Accelerator Conference*, pp. S64-S66, Nice, France, 1990.
- Lo EH, Fabrikant JI, **Levy RP**, Phillips MH, Frankel KA, Alpen EL: An experimental compartmental flow model for assessing the hemodynamic response of intracranial arteriovenous malformations to stereotactic radiosurgery. *Neurosurgery* 28:251-259, 1991.
- Phillips MH, Kessler M, Chuang FYS, Frankel KA, Lyman JT, Fabrikant JI, **Levy RP**: Image correlation of MRI and CT in treatment planning for radiosurgery of intracranial vascular malformations. *Int J Radiat Oncol BioI Phys* 20:881-889, 1991.
- Steinberg GK, Fabrikant JI, Marks MP, **Levy RP**, Frankel KA, Phillips MH, Shuer LM, Silverberg GD: Stereotactic helium ion Bragg peak radiosurgery for intracranial arteriovenous malformations: Detailed clinical and neuroradiologic outcome. *Stereotact Funct Neurosurg* 57:36-49, 1991.
- Steinberg GK, **Levy RP**, Fabrikant JI, Frankel KA, Phillips MH, Marks MP: Stereotactic helium ion Bragg peak radiosurgery for angiographically occult intracranial vascular malformations. *Stereotact Funct Neurosurg* 57:64-71, 1991.

- Levy RP**, Fabrikant JI, Frankel KA, Phillips MH, Lyman JT, Lawrence JH, Tobias CA: Heavy-charged-particle radiosurgery of the pituitary gland: Clinical results of 840 patients. *Stereotact Funct Neurosurg* 57:22-35,1991.
- Fabrikant JI, **Levy RP**, Steinberg GK, Phillips MH, Frankel KA, Lyman JT, Marks MP, Silverberg GD: Stereotactic charged-particle Bragg peak radiosurgery for the treatment of intracranial arteriovenous malformations. *Stereotact Funct Neurosurg* 57:50-63, 1991.
- Levy RP**, Fabrikant JI, Frankel KA, Phillips MH, Steinberg GK, Marks MP, DeLaPaz RL, Chuang FYS: Clinical-radiological evaluation of sequelae of stereotactic radiosurgery for intracranial arteriovenous malformations. In Steiner L (ed): *Radiosurgery Baselines and Trends*, Raven Press, New York, 1992, pp. 209-220.
- Levy RP**, Fabrikant JI, Phillips MH, Frankel KA, Steinberg GK, Marks MP, DeLaPaz RL, Chuang FYS, Lyman JT: Clinical results of stereotactic heavy-charged-particle radiosurgery for intracranial angiographically occult vascular malformations. In Steiner L (ed): *Radiosurgery Baselines and Trends*, Raven Press, New York, 1992, pp. 221-228.
- Levy RP**, Fabrikant JI, Lyman JT, Frankel KA, Phillips MH, Lawrence JH, Tobias CA: Clinical results of stereotactic heavy-charged-particle radiosurgery of the pituitary gland. In Steiner L (ed): *Radiosurgery. Baselines and Trends*, Raven Press, New York, 1992, pp. 149-154.
- Frankel KA, Phillips MH, Lyman JT, Chuang FYS, Fabrikant JI, **Levy RP**, Rosander K: Treatment planning for stereotactic heavy-charged-particle radiosurgery of the brain. In Steiner L (ed): *Radiosurgery: Baselines and trends*, Raven Press, New York, 1992, pp. 75- 83.
- Rosander K, Frankel KA, Cerda H, Phillips MH, Lo E, Fabrikant I, Fabrikant JI, **Levy RP**: DNA damage in mammalian cells after heavy-ion irradiation. In Steiner L (ed): *Radiosurgery: Baselines and Trends*, Raven Press, New York, 1992, pp. 121-127.
- Fabrikant JI, **Levy RP**, Steinberg GK, Phillips MH, Frankel KA, Silverberg GD: Stereotactic charged-particle radiosurgery: Clinical results of treatment of 1200 patients with intracranial arteriovenous malformations and pituitary disorders. *Clin Neurosurg* 38:472- 492,1992.
- Levy RP**, Fabrikant JI, Steinberg GK, Phillips MH, Frankel KA, Marks MP: Adverse clinical sequelae and complications following stereotactic charged-particle radiosurgery for intracranial arteriovenous malformations. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp. 195-201, Elsevier, New York, 1992.
- Levy RP**, Steinberg GK, Fabrikant JI, Frankel KA, Phillips MH, Marks MP: Stereotactic heavy-charged-particle radiosurgery for angiographically occult vascular malformations. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp. 177-183, Elsevier, New York, 1992.
- Fabrikant JI, **Levy RP**, Lyman JT, Lawrence JH, Tobias CA, Born JL, Phillips MH, Frankel KA: Stereotactic heavy-charged-particle radiosurgery for pituitary adenomas. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp 313-320, Elsevier, New York, 1992.
- Fabrikant JI, Steinberg GK, **Levy RP**, Phillips MH, Frankel KA, Lyman JT, Marks MP: Heavy-charged-particle radiosurgery of intracranial arteriovenous malformations: Clinical results

and future research directions. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp. 103-111, Elsevier, New York, 1992.

Phillips MH, Frankel KA, Lyman JT, **Levy RP**, Fabrikant JI: Charged particles: Bridging the gap between radiosurgery and radiotherapy. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp. 47-53, Elsevier, New York, 1992.

Rosander K, Fabrikant JI, Frankel KA, Cerda H, Phillips MH, Fabrikant IB, **Levy RP**: DNA damage in mammalian brain cells following charged-particle irradiation: Implications for late radiation injury following stereotactic radiosurgery. In Lunsford LD (ed): *Stereotactic Radiosurgery Update*, pp. 295-300, Elsevier, New York, 1992.

Levy RP, Fabrikant JI, Alpen EL: Oligodendrocyte response to ionizing radiation: Evidence for biologic defense mechanisms in mammalian brain. In Sugahara T, Sagan LA, Aoyama T (eds): *Proceedings of International Conference on Low Dose Irradiation and Biologic Defense Mechanisms*, Kyoto, Japan, pp. 167-170, Elsevier Publishers, Amsterdam, 1992.

Marks MP, Lane B, Steinberg GK, Fabrikant JI, **Levy RP**, Frankel KA, Phillips, MH: Endovascular treatment of cerebral AVMs following radiosurgery. *Am J Neuroradiol* 14:297-303, 1993.

Levy RP, Fabrikant JI, Frankel KA: Particle-beam irradiation of the pituitary gland. In Alexander E, Loeffler JS, Lunsford LD (eds): *Stereotactic Radiosurgery*, pp. 157-165, McGraw-Hill, New York, 1993.

Frankel KA, **Levy RP**, Fabrikant JI, Phillips MH: Heavy-charged-particle radiosurgery: Rationale and method. In Alexander E, Loeffler JS, Lunsford LD (eds): *Stereotactic Radiosurgery*, pp. 87-103. McGraw-Hill, New York, 1993.

Frankel KA, Steinberg GK, **Levy RP**, Marks MP, Lane B: Histologic response of helium-ion irradiated human endothelial cells. *Proceedings of The 1st International Workshop on Accelerator-Based Neutron Sources for Boron Neutron Capture Therapy*, pp. 177-196, Jackson, WY, 1994.

Levy RP, Schulte RWM, Frankel KA, Steinberg GK, Marks MP, Lane B, Heilbrock LH, Meinass HJ, Galindo RA, Slater JD, Slater JM: Computed tomography slice-by-slice target volume delineation for stereotactic proton irradiation of large intracranial arteriovenous malformations: An iterative approach using angiography, computed tomography, and magnetic resonance imaging. *Int J Radiat Oncol Biol Phys* 35:555-564, 1996.

Levy RP, Frankel KA, Ricciardi RA, Rhoades AE, Xu LL: Stereotactic helium-ion irradiation for Cushing's disease, prolactinoma and non-secreting adenoma: 36 years experience at Lawrence Berkeley Laboratory. In Kondziolka (ed): *Radiosurgery*, 1995, pp. 66-74, Karger, Basel, 1996.

Steinberg GK, Chang SD, **Levy RP**, Marks MP, Frankel KA, Marcellus M: Surgical resection of large incompletely treated intracranial arteriovenous malformations following stereotactic radiosurgery. *J Neurosurg* 84:920-928, 1996.

- Chang SD, Shuster DL, Steinberg GK, **Levy RP**, Frankel KA: Stereotactic radiosurgery of arteriovenous malformations: Pathologic changes in resected tissue. *Clin Neuropathol* 16:111-116, 1997.
- Gewirtz RJ, Steinberg GK, Crowley R, **Levy RP**: Pathologic changes in surgically resected angiographically occult vascular malformations after radiation. *Neurosurgery* 42:738-743, 1998.
- Thompson RC, Steinberg GK, **Levy RP**, Marks MP: Management of patients with arteriovenous malformations and associated aneurysms. *Neurosurgery* 43:202-212, 1998.
- Chang SD, Steinberg GK, **Levy RP**, Marks MP, Frankel KA, Shuster DL, Marcellus ML: Microsurgical resection of incompletely obliterated intracranial arteriovenous malformation following stereotactic radiosurgery. *Neurologia Medico-Chirurgica* 38 (suppl): 200-207, 1998.
- Chang SD, **Levy RP**, Adler JR Jr., Martin DP, Krakovitz PR, Steinberg GK: Stereotactic radiosurgery of angiographically occult arteriovenous malformations: Fourteen year experience. *Neurosurgery* 43(2):213-221, 1998.
- Levy RP**, Schulte RWM, Slater JD, Miller DW, Slater JM: Stereotactic Radiosurgery: The role of charged particles. *Acta Oncologica* 38(2): 165-169, 1999.
- Vatnitsky SM, Miller DW, Moyers MF, **Levy RP**, Schulte RW, Slater JD, Slater JM: Dosimetry techniques for narrow proton beam radiosurgery. *Phys Med Bio* 44:2789-2801, 1999.
- Fleetwood IG, Marcellus ML, **Levy RP**, Marks MP, and Steinberg GK: Deep arteriovenous malformations the basal ganglia and thalamus: natural history. *J Neurosurg*, Apr 2003; 98(4): 747-50.
- Chang SD, Marcellus ML, Marks MP, **Levy RP**, Do HM, and Steinberg GK: Multimodality treatment of giant intracranial arteriovenous malformations. *Neurosurgery*, Jul 2003; 53(1): 1-11; discussion 11-3.
- Slater JD, Rossi Jr CJ, Yonemoto LT, Bush DA, Jabola BR, **Levy RP**, Grove RI, Preston W, and Slater JM: Proton therapy for prostate cancer: the initial Loma Linda University experience. *Int J Radiat Oncol Biol Phys*, Jun 2004; 59(2): 348-52.
- Rossi Jr CJ, Slater JD, Yonemoto LT, Jabola BR, Bush DA, **Levy RP**, Grove R, and Slater JM: Influence of patient age on biochemical freedom from disease in patients undergoing conformal proton radiotherapy of organ-confined prostate cancer. *Urology*, Oct 2004; 64(4): 729-32.
- Luu QT, **Levy RP**, Miller DW, Shahnazi K, Yonemoto LT, Slater JM, and Slater JD: A clinical interactive technique for MR-CT image registration for target delineation of intracranial tumors. *Technol Cancer Res Treat*, Jun 2005; 4(3): 275-81.
- Sinclair J, Marks MP, **Levy RP**, Adler Jr JR, Chang SD, Lopez JR, Do HM, Bell-Stephens TE, Lim M, and Steinberg GK: Visual field preservation after curative multi-modality treatment of occipital lobe arteriovenous malformations. *Neurosurgery*, Oct 2005; 57(4): 655-67; discussion 655-67.

Levy RP: PET-CT: Evolving role in 3-D radiation therapy. *Technol Cancer Res Treat*, Apr 2006; 5(2): 101-7.

Massengale JL, **Levy RP**, Marcellus M, Moes G, Marks MP, and Steinberg GK: Outcomes of surgery for resection of regions of symptomatic radiation injury after stereotactic radiosurgery for arteriovenous malformations. *Neurosurgery*, Sep 2006; 59(3): 553-60; discussion 553-60.

Chang SD, Marcellus ML, Marks MP, **Levy RP**, Do HM, and Steinberg GK: Multimodality treatment of giant intracranial arteriovenous malformations. *Neurosurgery*, Jul 2007; 61(1 Suppl): 432-42; discussion 442-4.

Kelly ME, Guzman R, Sinclair J, Bell-Stephens TE, Bower R, Hamilton S, Marks MP, Do HM, Chang SD, Adler JR, **Levy RP**, and Steinberg GK: Multimodality treatment of posterior fossa arteriovenous malformations. *J Neurosurg*, Jun 2008; 108(6): 1152-61.

Levy RP: Evolving role of hadron irradiation: Potential and risks of hadrons heavier than protons. *Nucl Instrm Meth Phys Res B (American Institute of Physics Conference Proceedings: Applications of Accelerators in Research and Industry: 19th International Conference, CAARI 2006)*, 2007; 261: 763-767.

Levy RP: PET-CT: Evolving Role in Hadron Therapy. *Nucl Instrm Meth Phys Res B (American Institute of Physics Conference Proceedings: Applications of Accelerators in Research and Industry: 19th International Conference, CAARI 2006)*, 2007; 261: 782-785.

Levy RP, Blakely EA, Chu WT, Coutrakon GB, Hug EB, Kraft G, and Tsujii H: The Current Status and Future Directions of Heavy Charged Particle Therapy in Medicine. *American Institute of Physics Conference Proceedings (Applications of Accelerators in Research and Industry: 20th International Conference, CAARI 2008)*, 2009; 1099: 410-425.

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