

# Swaraj Bose, M.D.

Associate Professor  
Ophthalmology and Neurology  
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## SUMMARY

- Board Certified, American Board of Ophthalmology
- Subspecialty Practice: Neuro-Ophthalmology & Orbital Surgery
- Academic Title: Associate Professor of Ophthalmology and Neurology, University of California, Irvine, CA
- Attending Physician: Cedars Sinai Medical Center, Los Angeles, CA
- Awards: Best Doctors in America, America's Top Ophthalmologists, National Registers' Who's Who in Executives/Professionals, Physician of Excellence (OCMA), Best Teacher of the Year

## EDUCATION

### Fellowships

**Neuro-Ophthalmology/ Neuroplastics/ Orbital Surgery** 1998-2000

Doheny Eye Institute

*University of Southern California, Los Angeles, CA*

Preceptors: Steve E. Feldon, MD & Alfredo A. Sadun, MD, Ph.D.

**Neuro-Ophthalmology /Neurovascular Neuro-Ophthalmology** 1993-1994

*New York University Medical Center and*

*New York Eye & Ear Infirmary, New York, NY*

Dates: July 1993 - June 1994

Preceptor: Mark J. Kupersmith, M.D.

**Glaucoma Research & Visual Psychophysics** 1991-1993

Scheie Eye Institute

*University of Pennsylvania, Philadelphia, PA*

Preceptor: Jody R. Piltz-Seymour, M.D.

## Residencies

**Ophthalmology (USA)** 1995-1998  
*New York University Medical Center, New York, NY*

**Internship (Internal Medicine, USA)** 1994-1995  
*Veterans Administration Hospital & NYU Medical Center*  
New York University, New York, NY

**Ophthalmology (India), M.D.** 1981-1984  
*Dr. Rajendra Prasad Center for Ophthalmic Sciences,*  
All India Institute of Medical Sciences, New Delhi, India

Diplomat of the National Board (**D.N.B.**), Ophthalmology 1984  
National Board of Examiners, New Delhi, India

**Internship (Medicine, India)** 1980-1981  
*All India Institute of Medical Sciences*  
New Delhi, India

## Medical School

*All India Institute of Medical Sciences, New Delhi, India* 1975-1980  
(M.B.B.S.)

## College/University

B. Sc Zoology (Honors) with Physics – I 1974-1975  
*Delhi University, Hans Raj College, India*

## PROFESSIONAL & CAREER BACKGROUND

### Academic Appointments

<b>Associate Professor in Clinical Ophthalmology</b> University of California, Irvine Department of Ophthalmology, Irvine, CA	<i>2006–Present</i>
<b>Associate Professor in Clinical Neurology</b> University of California, Irvine Department of Neurology, Irvine, CA	<i>2006–Present</i>
<b>Attending Physician, Ophthalmology</b> Neuro-Ophthalmology, Orbital Surgery Cedars Sinai Medical Center, Los Angeles, CA	<i>2006–Present</i>
<b>Assistant Professor in Clinical Ophthalmology</b> University of California, Irvine Department of Ophthalmology Irvine, CA	<i>2003 – 2006</i>
<b>Assistant Professor in Residence, Ophthalmology</b> University of California, Irvine Department of Ophthalmology, Irvine, CA	<i>2000 – 2003</i>
<b>Assistant Professor in Residence, Neurology</b> University of California, Irvine Department of Neurology, Irvine, CA	<i>2001- 2006</i>
<b>Clinical Instructor, Neuro-Ophthalmology</b> Doheny Eye Institute, University of Southern California Los Angeles, CA	<i>1998 - 2000</i>
<b>Chief Resident (Ophthalmology)</b> New York University Medical Center New York, NY	<i>1997 - 1998</i>
<b>Clinical Researcher</b> Scheie Eye Institute University of Pennsylvania Philadelphia, PA	<i>1991 - 1993</i>
<b>Assistant Professor in Ophthalmology</b> University of Delhi, Guru Teg Bahadur Hospital Delhi, India	<i>1989 - 1991</i>
<b>Lecturer in Ophthalmology</b>	<i>1987- 1989</i>

Delhi University, New Delhi, India

**Registrar (Ophthalmology)**  
Lady Hardinge Medical College  
New Delhi, India

1985 - 1987

## Subspecialty Experience

Neuro-Ophthalmology including Neuro-Radiology, Neuro-Vascular Neuro-Ophthalmology

Neuro-ophthalmology Interventional Vascular treatment of carotid fistulas, Aneurysms and AVMs

Neuro-Pathology including Brain cutting, histology, special staining and Electron-microscopy

Neuro-plastic and orbital procedures - temporal artery biopsies, Optic nerve sheath fenestration, Trans-antral Orbital decompression for thyroid orbitopathy, removal of orbital tumors by anterior and lateral orbitotomy, functional blepharoplasty, ptosis repair, muscle surgery for restrictive and paralytic strabismus.

## Scientific Reviewer

1. Scientific Reviewer: "Ophthalmology" Journal of the American Academy of Ophthalmology 2000-Present
2. Scientific Reviewer: "American Journal of Ophthalmology" (AJO), 2004-Present
3. Graefes' Archives of Clinical and Experimental Ophthalmology, 2004-Present
4. Investigative Ophthalmology and Visual Science (IOVS), 2004-Present
5. Scientific Session Moderator/Chairman. Platform presentations, North American Neuro-Ophthalmology Society (NANOS), 2004-Present
6. Journal of Neuro-Ophthalmology (JNO), 2005-Present
7. Journal of Neurology, 2005-Present
8. Scientific Grant Reviewer: "Fight for Sight," New York, August 2007-Present
9. Abstract and Scientific Committee Member, North American Neuro-Ophthalmology Society (NANOS), 2004-Present

## Research experience including Methodology

- University of California, Irvine:

Clinical Sciences: (a) Functional neuroimaging techniques using fMRI and PET scanning. (Dr. Steven Potkin and Dr. James Fallon, UCI BIRN Center) (b) Ultrahigh resolution OCT studies (Beckman Laser Center). (c) Confocal Microscopy (Dr. James Jester, Ph.D.)

Basic Sciences: (a) Mouse model of hyperthyroidism C57BL/6 and Mutant mice. (b) Immunochemistry and ultrastructural / electron microscopy studies on extraocular muscles (Dr. Douglas Wallace's laboratory).

- Doheny Eye Institute, University of Southern California, Los Angeles:

Basic tissue sectioning and staining of optic nerve and brain specimens, special tissue staining, image analysis and electron-microscopy. (Dr. Alfredo Sadun's Laboratory). Tissue culture techniques and study effect of hormones on the lacrimal gland and orbital tissues. (Dr. Austin Mircheff's Laboratory).

- New York University Medical Center, New York:

Electrophysiology including ERG, EOG, and VER recordings. (William Steeple's Laboratory).

Study of spiking potentials from single retinal ganglion and Amacrine cells from a flat mount of the rabbit retina. (Dr. Stewart Bloomfield's Laboratory).

- Scheie Eye Institute, University of Pennsylvania, Philadelphia:

Macular Blood flow, Laser doppler velocimetry, image analysis (Labs. Of - Drs. Juan Grunwald, Charles Riva, and Benno Petrig). Visual psychophysics including contrast sensitivity and color vision (Dr. M. Breton's Lab.). Aqueous fluorophotometry, tonography and visual fields (Dr. Jody R. Piltz). Participated in drug sponsored studies: Alcon (\$28,400) and Merck (\$12,000)

- University of Delhi and All India Institute of Medical Sciences, New Delhi:

Pupil cycle time recordings, VER and BAER recordings (Dr. O.P. Tandon's Laboratory)  
Radial Keratotomy and Specular Microscopy on Rhesus Monkeys (Dr. M. Mohan's Laboratory).

## HONORS & AWARDS

1. Delhi Medical Association Gold Medal for Best all around Medical Student, 1979.
2. Dr. Sorel Catherine Fraymann Prize for Best student in Pediatrics.
3. AIIMS Gold Medal for Best Postgraduate in Ophthalmology, 1984.
4. Delhi Ophthalmological Society Trophy for Best Clinical Case Presentation, 1986.

5. Alcon Serva Award Travel Grant for presenting a paper at the American Academy of Ophthalmology, Meeting. Dallas, Texas – 1992.
6. Research to Prevent Blindness and Kirby Eye Institute Travel Grant. Association for Research in Vision and Ophthalmology (ARVO), 1997.
7. "Outstanding Teacher of the Year" 2000-2001, Department of Ophthalmology, University of California, Irvine.
8. "America's Top Ophthalmologists" 2002-2003, Consumers' Research Council of America. Neuro Ophthalmology/Orbital Surgery.
9. National Register's Who's Who in Executives & Professionals, 2004.
10. "Best Doctors in America 2003-2004" U.S. News & World Report, 2004.
11. "Best Doctors in Orange County 2004" Orange Coast Magazine, January 2004.
12. ARISE Award (for patient satisfaction), UCI Medical Center, August 2004.
13. "Visiting Professorship" lecturer status at University of California, San Diego, Shiley Eye Center, April 2005.
14. "Visiting Professor" University of Pennsylvania, Scheie Eye Institute, June 2005.
15. "Physicians of Excellence" Award, Orange County Medical Association, 2005.
16. "Best Doctors in Orange County 2005" Orange Coast Magazine, 2005.
17. "Visiting Professor", Invited Speaker, Department of Medicine and Endocrinology, Cedars Sinai Medical Center, June 2006.
18. Member of Medical Board for Lupus International, 2006.
19. Elected Fellow, North American Neuro-Ophthalmology Society, 2006.
20. "Physicians of Excellence" Award, Orange County Medical Association, 2007-2008.
21. Selected "International Neuro-Sciences Team Member for Patient Evaluation", Cedars Sinai Medical Center, September 2007.
22. "Physicians of Excellence" Award (Ophthalmology) Orange County Medical Association, 2007-2008.
23. "Best Doctors in America", 2007-08, 2009-10.
24. "America's Top Doctors", 2008, 2009
25. Elected Scientific Chairman, Abstract Committee, North American Neuro-Ophthalmological Society. 2008-2010
26. Selected International Scientific Chair, Neuro-Ophthalmology, Asia ARVO 2009, Hyderabad, India
27. Physician of Excellence, Orange County, by Orange County Medical Association. 2008-09, 2009-10, 2010-11, 2011-12
28. Visiting Professor, GITAM University, Vishakhapatnam, India, Jan 2009
29. Visiting Professor, All India Institute of Medical Sciences, AIIMS, Dr RP Center for

Ophthalmic Sciences, January 2009.

30. Invited Physician, X-Cell Center for Stem Cell Research, Dusseldorf, Germany, June, 2009.
31. Visiting Professor, King Khaled Eye Hospital, Saudi Arabia, October 12-17, 2009.
32. Honoree: Physician of Excellence, Orange County, by Orange County Medical Association. 2009-2010
33. Selected: National Register's Who's Who in Executives & Professionals, 2009-10.
34. Nominated to Membership: AOS- American Ophthalmological Society, May, 2009
35. Selected: Co-Editor of Scientific Journal: "Frontiers of Neuro-Ophthalmology" 2010
36. "Best Doctors in Orange County 2010" Orange Coast Magazine, 2010
37. Physician of Excellence Award, Orange County Medical Association, 2010-2011
38. Elected: Associate Editor: "Frontiers of Neuro-Ophthalmology" 2010-onwards
39. "Best Doctors in America", 2011-2012
40. "Who's Who in Science and Engineering", 2011-2012
41. "Best Doctors in Orange County-2012" Orange Coast Magazine 2012

## TEACHING

### Faculty Mentor

1. Babak Shabation, MD (Boston University, Boston, MA), August – October 2000.
2. Wade Crow, MD, (University of Southern California, Keck School of Medicine), Direct Supervision of Research Paper, 2000.
3. Parham V. Morgan, MD; (Arizona) Neuro-Ophthalmology Rotation Medical, November - December 2000.
4. Tranh Ninh, MD, Ophthalmology. Research Paper awardee, 2001.
5. Anshul Varshney, MD, April – May 2001.
6. Martina Wollenhaupt, MD (Germany) Neuro-Ophthalmology Observer, August – October 2001.
7. Sumit Garg, MD, (New York Medical College) Clinical Rotation, July 2002.
8. Vivek Jain, MD, Neurology, University of California, Irvine, August 2002.

9. Santosh Patel, MD, Ophthalmology, December 2002
10. Marjan Farid, MD (Ophthalmology Resident from St. Georges, Barbados), “Psychological Disturbances in Graves’ Ophthalmopathy, Before and After Orbital Decompression”. January 2003-May 2006.
11. Miguel Moreno, MD, Pediatric Neurology, May 2004.
12. Shelly Bose, MD (Neurology Resident), Neurology, January 2005.
13. Kristin Rarey (UCI Medical Student), “Mitochondria in Thyroid Disease” Clinical Rotation. January 2005.
14. Andrew McIntosh, MD, Pediatric Neurology, July 2005
15. Anna Kesler-Diaz, MD Neuro-Ophthalmology, August 2005.
16. Nischal Kumar, MD Neuro-Ophthalmology trainee/preceptorship, August 2005.
17. Rohit Shetty, MD (from Bangalore, India), June-July 2005.
18. Chyong Nien, MD (Santiago, Chile), May 2006-October 2007
19. Claudia Kwon, MD. Fellow: Neurology, February-March 2008.
20. Sabin Dang (Medical student) UCLA, Los Angeles, March 2009.
21. Omar Ozgur (Medical Student), Madison, Wisconsin, July 2009.
22. Kaveh Saremi, MD. (Neurology/Neuro-Muscular Fellow), Rotation in Neuro-Ophthalmology, Aug-October 2010

### **Specific Teaching Responsibilities**

1. Organized and participated in national and local seminars and symposia including, Ocular leprosy, Congenital eye disorders, Prevention of Blindness, 1985 – 1988.
2. Resident education and planning, University of Delhi, New Delhi, India, 1985 – 1988.
3. Medical Student Examiner, Ophthalmology, University of Delhi, New Delhi, India, 1988 – 1991.



4. Classes for Ophthalmic techniques at University of Pennsylvania, Philadelphia, 1991 – 1993.
5. Organizing cases for Neurology and Neurosurgery grand rounds, NYU, New York, 1993 – 1994.
6. Neuroscience Course at New York University Medical Center, New York, NY, 1994 – 1997.
7. Medical student lectures on Neuro-Ophthalmology at University of Southern California, Doheny Eye Institute, 1998 –Present.
8. Resident (Ophthalmology and Neurology) and Medical student lectures, Grand Rounds, University of California, Irvine, 2001 – Present.
9. Cadaver dissection and prosection of eye and Orbit - Medical students and Ophthalmology residents, University of California, Irvine, 2001- Present.
10. Neuro-Ophthalmology Teaching at Osler Course, San Francisco, 2003-Present.

#### MEMBERSHIPS & PROFESSIONAL AFFILIATIONS

1. Association for Research in Vision and Ophthalmology (ARVO), since 1992.
2. American Academy of Ophthalmology (AAO). Active since 2000
3. North American Neuro-Ophthalmological Society (NANOS) Active since 1998.
4. President. Southern California Neuro-Ophthalmological Society (SCANOS).
5. All India Ophthalmological Society.
6. Indo-Japanese Ophthalmological Foundation.
7. Orange County Society of Ophthalmology.
8. Organized first meeting of SCANOS at UC Irvine, October 4, 2003.
9. Chairman. Volunteer Faculty Committee, University of California,

Irvine, Ophthalmology.

10. Committee member. Oculoplastics Search Committee, University of California, Irvine.
11. Committee member. Pediatrics Search Committee, University of California, Irvine.
12. Department of Ophthalmology Research Funding Committee, University of California, Irvine.
13. Academic Senate, School of Medicine, University of California, Irvine. 2002-Present.
14. Human Resources Committee. School of Medicine, University of California, Irvine, 2002-Present
15. Credentials Committee. School of Medicine, University of California, Irvine. 2005-Present.
16. Board Member. Lupus International, Irvine, CA, 2006- Present.
  17. Moderator and Co-Moderator, Platform sessions, Abstract, Scientific, Research, NOVEL and Curriculum Committees, NANOS-North American Neuro-Ophthalmological Society, 2004-Present.
  18. Symposium Moderator, International Neuro-Ophthalmology Society, 2008.
  19. Chair, Moderator and Speaker at the Asia ARVO 2009, International Meeting, Hyderabad, India.
  20. Chair, Scientific Abstract Committee, NANOS, 2009-10
  21. Scientific Session Moderator: 4<sup>th</sup> annual Gavin Herbert Eye Institute Colloquium. Sep. 25-26, 2009. "An Update in Advances in Neuro-Ophthalmology"
  22. Moderator and Chair, Scientific Committee, NANOS, 2012

## INDEXED PUBLICATIONS

1. D'Souza P, Shorey P, **Bose S**, Lamba PA. Primary School Teachers in

- Delivery of Eye Health Care. *Ind. J Ophthalmol.* 35(5): 429-430, 1987.
2. Rohatgi J, **Bose S**, Lamba PA. Argon Laser Iridotomy in Angle Closure Glaucoma. *Ind J Ophthalmol.* 35:285-289, 1987.
  3. Lamba PA, Rohatgi J, **Bose S**. Evaluation of the Pre-Corneal Tear Film in Leprosy. *Ind J Ophthalmol.* 35:125-129, 1987.
  4. Bose S, Mohan M. Specular Microscopic Observations in Radial Keratotomy and Cryoapplications - an experimental study. *Acta Con Ophthalmol.* 805-809. 1987.
  5. Sihota R, **Bose S**, Paul HA. The Neonatal Fundus in Maternal Toxemia. *J Pediatr Ophthalmol Strabismus.* 26:281-284, 1989.
  6. Sihota R, **Bose S**, Paul HA. The Neonatal Fundus. *J Ophthalmol Nurs Technol.* 9(2): 61-65, 1990.
  7. Kumar A, **Bose S**, Bhattacharya A. et al. Oral Clonidine Premedication for Elderly Patients Undergoing Intraocular Surgery. *Acta Anesthesiol Scand.* 36(2): 159-162, 1992.
  8. Grunwald JE, Piltz JR, Patel N, **Bose S**, Reva CE. Effect of Aging on Retinal Macular Circulation. A blue field simulation study. *Invest Ophthalmol Vis Sci.* 34(13): 3609-3613, 1993.
  9. Kumar A, Tandon OP, Bhattacharya A, **Bose S**, Kundra P. Recovery from Preoperative Sedation with Clonidine - Brain Stem Auditory Evoked Response. *Anesthesia.* 49(6): 533-537, 1994.
  10. **Bose S**, Kupersmith MJ. Near-Ophthalmologic Presentations of Functional Visual Disorders. *Neurologic Clinics.* 13(2): 321-339, 1995.
  11. **Bose S**, Piltz JR, Breton ME. Effect of Nimodipine, a centrally active calcium channel blocker on spatial contrast sensitivity in normal tension glaucoma. *Ophthalmology.* 102(8): 1236-43, 1995.
  12. Piltz JR, **Bose S**, Lanchoney D. The Effect of Nimodipine, a centrally active calcium antagonist on macular blood flow and visual function in patients with normal tension glaucoma and controls. *Journal of Glaucoma.* 7:336-342, 1998.
  13. **Bose S**, Heller KB, Saadati HG, Sadun AA. Primary Visual Nuclei in Optic Nerve Hypoplasia and Normal Control. *Invest Ophthalmol Vis Sci.* 40(4): 8445, 1999.
  14. Barr D, Kupersmith M, **Bose S**, Turbin R, Roth R. Isolated Sixth Nerve

- Palsy: An Uncommon Presenting Sign of Multiple Sclerosis. *Journal of Neurol*, 247: 701-704, 2000.
15. Sadun A, Carelli V, **Bose S**, Ross-Cisneros F, Barboni P, Ahrens E. First Application of Extremely High-resolution Magnetic Resonance Imaging to Study Microscopic Features of Normal and LHON Human Optic Nerve. *Ophthalmology*, 109(6): 1085-91, 2002.
  16. Grant A, Jain V, **Bose S**. Epileptic Monocular Nystagmus. *Neurology*, 59: 1438-1441, 2002.
  17. Zhu Z, et al, **Bose S**, Trousdale MD. Tumor Necrosis Factor Inhibitor Gene Expression Suppresses Lacrimal Gland Immunopathology and Ocular Surface Disease in a Rabbit Model of Autoimmune Dacryoadenitis. *Cornea*, 22 (4): 343-351, 2003.
  18. Sadun AA, **Bose S**. Neuro-Ophthalmology at Large, (from the) Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO). *Journal of Neuro-Ophthalmology*, (23) 1, 83-86, March 2003.
  19. **Bose S**. Neuro-Ophthalmology at Large. *Journal of Neuro-Ophthalmology*, (23)4: 298-300, 2003.
  20. McCulley TJ, Lam BL, **Bose S**, Feuer WJ. The effect of optic disk edema on spontaneous venous pulsations. *Am J Ophthalmol*. 135(5):706-8. May; 2003
  21. **Bose S**, Pomeranz H. Neuro-Ophthalmology at Large. *Journal of Neuro-Ophthalmology*, 2004 Dec; 24(4):323-6.
  22. **Bose S**, Dhillon N, Ross Cisneros F, Carelli V. Relative Post-Mortem Spraying of Afferent Pupil Fibers in a Patient with 3460 Leber's Hereditary Optic Neuropathy. *Graefes' Archives of Clinical and Experimental Ophthalmology*. July 2005; 1-5.
  23. **Bose S**, Pomeranz H. Neuro-Ophthalmology at Large. *Journal of Neuro-Ophthalmology*. 2005 Dec 25 (4); 321-4.
  24. **Bose S**, Mok AC, Fallon JH, Potkin SG, Keator D. Three month change in Cerebral Glucose Metabolism in patients with Non Arteritic Ischemic Optic Neuropathy. *Graefes' Archives of Clinical and Experimental Ophthalmology*. 2006 Jan, 13; 1-4
  25. **Bose S**, Pomeranz H. "Neuro-Ophthalmology at Large". Proceedings of "The Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, Florida, April 30-May 4, 2006." *Journal of Neuro-Ophthalmology*. 26 (3), 2006.

26. **Bose S**, “Neuroimaging in Neuro-Ophthalmology.” *Neurosurgical Focus*. 23 (5):E9, November 2007
27. **Bose S**, Pomeranz H. “Neuro-Ophthalmology at Large”. Proceedings of “The Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, Florida, May 6 – 10, 2007.” *Journal of Neuro-Ophthalmology*. 27 (4), 2007
28. **Bose S**, Bhatti, M.T. “Clinicians’ Corner” Focal Points, Clinical Modules for Ophthalmologists, American Academy of Ophthalmology, 28 (4), June 2010
29. Nien, C, Jester, J and **Bose, S** (2010) “Effects of Hyperthyroidism on the Rectus Eye Muscles in C57BL/6 Mice.” *Frontiers in Neurology Journal* 1:143. Doi:10.3389/fneur.2010.00143, October 2010.

#### NON PEER REVIEWED ARTICLES

1. **Bose, S**. Current Therapeutic Strategies in the Treatment o Neuro-Ophthalmic Conditions. *Therapeutic Updates*. Vol. 3 No. 4, 2001.
2. **Bose, S**. Mary Rose Almasi. Soothe Dry Eyes. Keep your vision clear with these pro tips. *Shape*. Feb. 2007

#### SCIENTIFIC ABSTRACTS

1. Sihota R, **Bose S**, Paul A. The Neonatal Fundus in Maternal Toxemia, All India Institute of Medical Science, New Delhi, *Indian Journal of Pathology & Microbiology*. 33(2): 193-4, 1990.
2. Sihota R, **Bose S**, Paul A. The Neonatal Fundus in Maternal Toxemia, All India Institute of Medical Science, New Delhi, *Indian Journal of Pathology & Microbiology*. 33(2): 193-4, 1990.
3. **Bose S**, Piltz J, Breton M. Effect of Nimodipine, a Centrally Active Calcium Channel Blocker on Spatial Contrast Sensitivity in Normal Tension Glaucoma. *AAO* 1992.
4. Grunwald E, Piltz J, **Bose S**, Patel N, Petrig L, Riva C. Effect of Aging on Retinal Macular Microcirculation. *ARVO* 1993.
5. Kupersmith M, **Bose S**, Warren F. Cavernous Sinus AV Shunt. *NANOS* 1994.

6. **Bose S**, Warren FA, Kupersmith MJ. Bilateral Inflammatory Optic Neuropathy. Invest Ophthalmol Vis Sci. 35(4): 2059, 1994.
7. **Bose S**, Kupersmith M, Warren F. Pituitary Apoplexy - When not to Operate. AAO 1994.
8. Piltz JR, **Bose S**. Effect of B1 Selective and Non-selective B Blockers on Macular Blood Flow and Contrast Sensitivity. Invest Ophthalmol Vis Sci. 35(4): 1659, 1994.
9. **Bose S**, Bloomfield SA. A Comparison of the Spiking Pattern of Amacrine and Ganglion Cells in the Rabbit Retina. Invest Ophthalmol Vis Sci. 37(3): S1056, 1996.
10. **Bose S**, Siegel IM. Eyelid Margin and tarsal Conjunctival Sensitivity as a Measure for RGP Lens Tolerance. Invest Ophthalmol Vis Sci. 38(4): S137, 1997.
11. **Bose S**, Zagzag D, Warren F. Primitive Neuroectodermal (PNET), possible irradiation induced. 26<sup>th</sup> Annual Frank B. Walsh Meeting.
12. **Bose S**, Carelli V, Saadati H, Sadun A. Optic Nerve and Retinal Changes in Leber's Hereditary Optic Neuropathy (LHON) with 11778 and 3460 mt DNA Mutations - A comparative light & electronmicroscopic study. NANOS March 1999.
13. VanCoevorden RE, Piltz JR, **Bose S**, Stanford DC. The Effect of Forced Unilateral Breathing on Intraocular Pressure and Aqueous Flow in Human Eyes. Invest Ophthalmol Vis Sci. 40(4): 8836, 1999.
14. Ruth R, Kupersmith MJ, Turbin R, **Bose S**, Isolated Sixth Nerve Palsy and Uncommon Presenting Sign of Multiple Sclerosis: A retrospective study. Invest Ophthalmol Vis Sci. 40(4): 8653, 1999.
15. **Bose S**, Heller KB, Saadati HG, Sadun AA. Primary Visual Nuclei in Optic Nerve Hypoplasia and Normal Control. Invest Ophthalmol Vis Sci. 40(4): 8445, 1999.
16. **Bose S**, Rao N, Feldon S. A Rock Solid Case. 31<sup>st</sup> Annual Frank B. Walsh Meeting. March 2000.
17. **Bose S**, Crow W, Stevenson D, Trousdale M, Mircheff AK. Role of Apoptosis in Rabbit Lacrimal Gland Acinar Cells in a Dry Eye Model of Autoimmune Dacryoadenitis. CLAO 2001.
18. Sadun AA, Carelli V, **Bose S**, Ahrens ET. Extremely High Sensation MRI of the Human Optic Nerve Reveals LHON Associated Pathology. North American Neuro-Ophthalmological Society Meeting. February 2001. Pg 54. #28.
19. **Bose S**, Crow W, Douglas S, Zejin Z, Schechter JE, Mircheff AK, Trousdale M. Evaluation of Apoptosis in Rabbit Lacrimal Glands with Autoimmune Dacryoadenitis and Following In-viro Transduction of Adenovirus - Mediated Gene Transfer of IL-10. CLAO Abstract.
20. **Bose S**, Carelli V, Dhillon N, Ross-Cisneros F, Sadun AA. Post-Mortem Pupil Tracing in a Patient with LHON: A Di I Study. Invest Ophthalmol Vis Sci 2001.

21. **Bose S.** Relative Sparing of Afferent Pupillary Pathways in Leber's Hereditary Optic Neuropathy: A Postmortem Study. NANOS Abstracts, J Neuro-Ophthalmol 22: 170-171, 2002.
22. **Bose S,** Taban M, McCulley T, Banik R, Fallon J, Potkin S. Regional Cerebral Metabolic Changes Following Optic Nerve Sheath Fenestration for Pseudotumor Cerebri Using PET Imaging. NANOS. February 2003.
23. McCulley TJ, **Bose S,** Kersten RC. Medial rectus muscle incarceration in orbital trapdoor fractures, an uncommon but treatable cause of diplopia. American Journal of Ophthalmology 2003.
24. **Bose S,** J Fallon, Potkin S, D Keator: North American Neuro-Ophthalmology Society (NANOS) Meeting, Orlando, Florida. Topic: Functional Neuro-Imaging in NAION Using PET Scanning." March 27-April 1, 2004.
25. **Bose S,** J Fallon, Potkin S. Association for Research and Vision in Ophthalmology (ARVO) Meeting, Ft. Lauderdale, Florida. Scientific Poster Presentation: "Functional Brain Imaging using PET Scan in Non-Arteritic Ischemic Optic Neuropathy" April 25, 2004
26. Erb MH, Tran NH, **Bose S,** McCulley TJ. Association for Research and Vision in Ophthalmology (ARVO) Meeting, Ft. Lauderdale, Florida. Scientific Poster Presentation: "Comparative exophthalmometry between Asian and Caucasian adults." April 25, 2004.
27. **Bose S,** Rarey K, Chen A, Wallace D. "Extraocular Muscle Mitochondrial Changes in Hyperthyroid Mice." NANOS Poster Presentation. Feb., 2005
28. **Bose S,** Rarey K, Chen A, Kenney C, Waymire K, Wallace D. "Mitochondrial Changes in Extraocular Muscles of Hyperthyroid C57BL/6 Mice" ARVO Poster Presentation. May 2005.
29. Rarey K, **Bose S.** Orbital Histopathology in Experimentally Induced Hyperthyroidism. In: National Student Research Forum, Galveston, TX. (Faculty mentor).
30. The Association for Research in Vision and Ophthalmology (ARVO): "Ultrastructural Changes in Extraocular Muscles of Hyperthyroid Adenosine Nucleotide Translocator-1 (ANT1) Deficient Mice". Ft. Lauderdale, FL May 4, 2006.
31. ARVO: "Trilodo-thyronine (T3) Activates Caspase-3 and Caspase-8 Pathways in Primary Cultured Mouse Extraocular Muscle Cells." Ft. Lauderdale, FL May 10, 2007.
32. ARVO: "Confocal Laser Scanning Microscopy: A Novel Technique for Quantitative Assessment of Normal and Hyperthyroid Extraocular Muscles in C57BL/6 Mice." Ft. Lauderdale, FL May 10, 2007.
33. **Bose S,** Nien C, Jester J. "Layer Specific Differences of Normal and Hyperthyroid Extraocular Muscles in C57BL/6 Mice" North American Neuro-Ophthalmology Society (NANOS) 2008.
34. **Bose S,** Nien CJ, Lam LT, Jester J. "Orbital and Global Layer Differences of Normal and

Hyperthyroid Extraocular Muscles in C57BL/6 Mice". IOVS. A108 Pg 286. 2008.

35. **Bose S**, Nien CJ, Jester J. "Mitochondrial Abnormalities in Extraocular Muscles of Hyperthyroid Mice" International Neuro-Ophthalmology Society Meeting. INOS. 2008
36. **Bose S**. Confocal Microscopy and neuro-ophthalmology. Asia ARVO. Hyderabad, India 2009.

## BOOK CHAPTERS

1. **Bose S**. "Principles of Imaging in Neuro-Ophthalmology. Chapter 185. In Ophthalmology 2<sup>nd</sup> Edition. Mosby. Inc., St. Louis, 2004, Myron Yanoff, MD, Jay Duker, MD editors.
2. **Bose S**. "Principles of Imaging in Neuro-Ophthalmology." Chapter 11.01. Mosby Inc., St. Louis, 2003. Myron Yanoff, MD, Jay Duker, MD editors. Revised.
3. **Bose S**. "Orbital Tumors" Chapter 39. Practical Neuro-Ophthalmology. Thieme. New York. 2005. Anthony C. Arnold, MD, Leonard A. Lerin, MD, Ph D editors. Pg 345-55.
4. Sadun and **Bose**. "Anatomy of the Visual Sensory System" in Duane's Foundations of Clinical Ophthalmology. Lippincott, Williams and Wilkins, Philadelphia. 2002 Edition. William Tasman, MD, Edward A. Jaeger, MD editors.
5. **Bose S**. "Neuro-Ophthalmology- Nonorganic Visual Loss" in Albert and Jakobiec's Principles and Practice of Ophthalmology, 3<sup>rd</sup> Edition. Philadelphia: W.B. Saunders Co., Leonard A. Levin, MD, Simmons Lessell, M.D., editors. Chapter 292. Pages 4017-28.
6. **Bose S**. "Neuro-Ophthalmology: 49 Questions. Disorders of Higher Visual Function. 1<sup>st</sup> Edition. 2008. Eds: E Berman, A Lee.



## SCIENTIFIC PRESENTATIONS

1. Lecture to Ophthalmic technicians at Scheie Eye Institute, University of Pennsylvania, Philadelphia. Topic: "Contrast Sensitivity and Vision." September 1992.
2. American Academy of Ophthalmology, Annual Meeting, Dallas, Texas. Topic: "Calcium Channel Blockers in Normal Tension Glaucoma." November 1992.
3. Greater New York Neuro-Ophthalmology Meeting. Presentation: Wallenberg Syndrome - Lateral Medullary Syndrome. September 1993.
4. Neurology and Neurosurgery Grand Rounds, Bellevue Hospital. Topic: "Management of Pseudotumor Cerebri (PTC)." October 1993.
5. Greater New York Neuro-Ophthalmology Meeting. Presentation: "Presentation of Neurosarcoidosis." December 1993.
6. Grand Rounds - Department of Neurology and Neurosurgery. Topic: "Presentation, Diagnosis and Management of Neurocysticercosis." December 1993.
7. Lecture given to ophthalmic technicians at Scheie Eye Institute, University of Pennsylvania, Philadelphia. Topic: "Humphrey Visual Field Testing."
8. North American Neuro-Ophthalmology Society (NANOS) Meeting, Durango, Colorado. Presentation: "Retinal/Choroidal Dysfunction Caused by Cavernous Sinus AV Shunts." March 1994.

9. Greater New York Neuro-Ophthalmology Meeting. Presentation: "Autoimmune Optic Neuropathy." March 1994.
10. Greater New York Neuro-Ophthalmology Meeting. Presentation: "Embolization of Carotid - Cavernous Fistulas." June 1994.
11. Grand Rounds - Department of Medicine, Veteran's Affairs Medical Center. Topic: "Evaluation of Diabetic Retinopathy." November 1994.
12. New York University Medical Center, Alumni Meeting talk on: "Bilateral Inflammatory Optic Neuropathy." 1995.
13. University of Pennsylvania, Scheie Eye Institute. Invited Speaker. Topic: "Management of Carotid Cavernous Fistulas." 1995.
14. Association for Research and Vision in Ophthalmology (ARVO) Meeting, Ft. Lauderdale, Florida. Poster Presentation: "Spiking Activity of Ganglion Cells and Amacrine Cells in the Rabbit Retina." May 1996.
15. Speaker during Visiting Professorship Day, Dr. Donald Gass, Vanderbilt University. Talk: "Carotid Dissection with Ophthalmic Artery Occlusion." March 1997.
16. Association for Research and Vision in Ophthalmology (ARVO) Meeting, Ft. Lauderdale, Florida. Poster Presentation: "Eyelid Margin and Corneal Sensitivity in Hard Contact Lens Wearers." April 1997.
17. Grand Rounds Speaker. New York University Medical Center. Department of Ophthalmology. Topic: "Modern Trends in Ocular Leprosy." June 1997.
18. Speaker during Visiting Professorship Day, Dr. Harry Quigly, Johns Hopkins, Wilmer Eye Institute. Talk: "Management of Iris Cysts." March 1998.
19. Frank Walsh Neuro-Ophthalmology Annual Meeting, Atlanta, Georgia. Accepted Neuropathology Case Presentation: "A Rock Solid Case." February 6-7, 1999.
20. Invited Guest Speaker at Lady Hardinge Medical School, New Delhi, India. Topic: "Current Approach to Management of Thyroid Eye Disorders." This was attended by about 200 people including medical students, residents, and faculty from Ophthalmology, Medicine, Endocrinology, Surgery, and Plastic Surgery. February 1999.
21. North American Neuro-Ophthalmology Society (NANOS) Meeting, Snowmass, Colorado. Presentation: "Light and Electron - Microscopic Findings in Cases with Leber's Hereditary Optic Neuropathy - Mitochondrial Mutation mt11778 and mt3460 cases." March 1999.
22. Association for Research and Vision in Ophthalmology (ARVO) Meeting, Ft. Lauderdale, Florida. Poster Presentation: "Primary Visual Nuclei in Optic Nerve Hypoplasia." A histopathological comparison of the lateral geniculate body, Superior

## RESEARCH GRANTS

1. **NIH Funded GCRC Grant: Direct Costs \$30,000.**  
Principal Investigator: Swaraj Bose, MD. Title: "Functional Assessment of the Visual Cortex Using PET Scanning in Patients with Optic Neuropathy." University of California, Irvine. 12/2000-Present.
2. **Allergan Study.** "A One-Year, Multicenter, Open-Label Study (With A One-Year Extension) Of The Safety And Efficacy Of Brimonidine-Purite™ 0.15% Ophthalmic Solution Administered QID In Patients With Leber's Hereditary Optic Neuropathy." Principal Investigator: Swaraj Bose, MD. 12/2002-8/2004.
3. **University of California, Irvine. Grant for Research: \$40,000.** Project. "Tissue Culture of Rabbit Lacrimal Gland Acinar Cells and Study the Effects of Thyroid Hormone." Principal Investigator: Swaraj Bose, MD. Completed.
4. **NIH. RO1 EY015926-01 RFA Graves' Ophthalmopathy.** In Preparation. "Mitochondrial Etiology of Thyroid Associated Ophthalmopathy" Principal Investigator: Swaraj Bose, Co-Principal Investigator: Douglas Wallace, Ph.D. 8/2004 to Present. Due for resubmission in spring, 2006.
5. **NIH EY 05801:** Project - "Secretory Changes in Purified Lacrimal Acinar Cells in Culture." Principal Investigator: Austin Mircheff, Ph D. University of Southern California and Keck School of Medicine. Completed.7/2000-2001.
6. **NEI EY 10550:** Project - "Morphological Changes in Purified Lacrimal Acinar Cells in Culture." Principal Investigator: Joel Schechter, Ph D. University of Southern California and Keck School of Medicine. Completed. 7/2000-2001.
7. **James H. Zumberge Fund: \$50,000.** Co Investigator: Swaraj Bose, MD. Principal Investigator: Steven E. Feldon, MD. Completed.9/2001.
8. **Clinical X Grant: \$60,000 (for two years) 2003-2005.**  
University of California, Irvine. "Effect of hyperthyroidism on the mouse extraocular muscle ultra structure and mitochondria. Principal Investigator: Swaraj Bose, M.D. Current. 2003-2005.

9. **Fight for Sight, New York. \$2100. UCI Faculty Mentor.** “Mitochondria in Graves’ Disease” summer 2004.
10. **Dean’s Research Award. \$ 8000. University of California, Irvine. UCI Faculty Mentor** “Mitochondria in Graves’ Disease” summer 2004.
11. **Research for the Prevention of Blindness (RPB). \$20,000.** Thyroid Research, Unrestricted grant. June, 2005.
12. **Novartis Pharmaceuticals Protocol CFTY720D2309:** “A 24 month, double-blind, randomized, multi-center, placebo-controlled, parallel-group study comparing efficacy and safety of FTY720 1.25mg and 0.5mg administered orally once daily versus placebo in patients with relapsing-remitting MS.” Co-Investigator: Swaraj Bose, MD. Principal Investigator: Stanley Van Den Noort, MD. September 2007-2008.
13. **Novartis Pharmaceuticals Protocol CFTY720D2309E1, Post Text Supplement:** “A 24 month, double-blind, randomized, multi-center, placebo-controlled, parallel-group study comparing efficacy and safety of FTY720 1.25mg and 0.5 mg administered orally once daily versus placebo in patients with relapsing-remitting MS”. (Extension phase with open label 0.5 mg fingolimod, for 2 yrs) Co-Investigator: Swaraj Bose, MD. Principal Investigator: Avery Tyler Pittluck, MD. 2008 and ongoing...
14. **Pfizer Study:** Case-Crossover Study of PDE5 Inhibitor Exposure as a Potential "Trigger Factor" for Acute NAION. 2009. Principal Investigator: Swaraj Bose, MD

