

Charles DeBoer, MD, PhD

Assistant Professor of Ophthalmology

CLINICAL OFFICE (PRIMARY)

- **Stanford Byers Eye Institute**

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Bio

BIO

Dr. DeBoer is a board-certified, fellowship-trained vitreoretinal surgeon with Stanford Health Care's Byers Eye Institute and a clinical instructor in the Department of Ophthalmology.

He specializes in retinal and macular diseases, treating a range of conditions such as retinal tears, diabetic retinopathy, retinal vein occlusions, macular pucker, macular hole, macular degeneration, retinal detachment, and other complex retinal conditions. Dr. DeBoer incorporates state-of-the-art treatments in personalized, comprehensive care plans for each of his patients. He is dedicated to training future vitreoretinal surgeons and passionate about helping patients through both direct care and research.

Dr. DeBoer's scientific background in micro- and nanofabrication, mechanical and electrical engineering, and medicine drives his research interests in implantable devices and surgical instruments. While completing his PhD, Dr. DeBoer co-invented a biomimetic accommodating intraocular lens (IOL) that treats both cataracts and presbyopia.

He continues researching microdevices, focusing on extended drug delivery from the lens capsule and microelectromechanical systems (MEMS)-enabled implantable devices. Dr. DeBoer's research experience spans topics such as material science, drug delivery, IOL design, microfabrication, 3D printing, and medical device design. He has received grant funding for his work and has 12 patents in the field of ophthalmology.

Dr. DeBoer's work has been published in peer-reviewed journals, including the American Journal of Ophthalmology. He has authored book chapters and presented to his peers at national and international meetings, including meetings of the American Society of Retina Specialists and the Association for Research in Vision and Ophthalmology.

Dr. DeBoer is a member of the American Academy of Ophthalmology and American Society of Retina Specialists. He is also part of the Society of HEED Fellows and Ronald G. Michels Fellowship Foundation.

CLINICAL FOCUS

- Retina Specialist

ACADEMIC APPOINTMENTS

- Assistant Professor - University Medical Line, Ophthalmology

HONORS AND AWARDS

- Foundation Award, Ronald G. Michels Fellowship Foundation
- Fellow Teaching Award of the Year, Byers Eye Institute
- HEED Fellowship, Heed Ophthalmic Foundation
- Atwood Fellowship, California Institute of Technology

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Academy of Ophthalmology (2018 - present)
- Member, American Society of Retina Specialists (2021 - present)
- Member, Society of HEED Fellows (2021 - present)
- Member, Ronald G. Michels Fellowship Foundation (2022 - present)
- Member, Alpha Omega Alpha (2016 - present)
- Member, Phi Beta Kappa Society (2023 - present)
- Member, Sigma Xi, The Scientific Research Honor Society (2023 - present)

PROFESSIONAL EDUCATION

- Residency: USC Roski Eye Institute Ophthalmology Program (2021) CA
- Board Certification: Ophthalmology, American Board of Ophthalmology (2022)
- Fellowship: Stanford University Ophthalmology Fellowships (2023) CA
- Internship: Huntington Memorial Hospital Internal Medicine Residency (2018) CA
- Medical Education: University of Southern California Keck School of Medicine (2016) CA

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Wen Hong

Publications

PUBLICATIONS

- **Novel oral medications for retinal disease: an update on clinical development.** *Current opinion in ophthalmology*
DeBoer, C. M., Agrawal, R., Rahimy, E.
2023
- **Case report: multidrug-resistant Pseudomonas keratitis and sequential endophthalmitis treated with chlorhexidine and Piperacillin-Tazobactam** *Journal of EuCornea*
Lu, L., Shen, A., DeBoer, C., Mahajan, V., Lin, C., Rose-Nussbaumer, J.
2023
- **Ischemic index and distribution of retinal capillary non-perfusion in neovascular glaucoma** *FRONTIERS IN BIOSCIENCE-LANDMARK*
DeBoer, C., Wong, B., Ameri, H.
2022; 27 (1): 24

- **Metastatic neuroendocrine tumors mimicking as primary ocular disease** *American Journal of Ophthalmology Case Reports*
Shen, A., Haghighi, A., Liang, T., Lee, O., Gange, W., DeBoer, C.
2022
- **Oral drug pipeline for retinal disease**
DeBoer, C., Michalak, S., Rahimy, E.
Retinal Physician.
2022
- **Controversies in ILM peeling**
DeBoer, C., Leng, T.
Retina Today.
2022
- **Laser Therapy**
DeBoer, C., Smith, S., Blumenkranz, M.
ASRS, History of Retina, Milestones in Retina.
2021
- **Effect of Angle Narrowing on Sectoral Variation of Anterior Chamber Angle Width The Chinese American Eye Study** *OPHTHALMOLOGY GLAUCOMA*
Xu, B. Y., Pardeshi, A. A., Shan, J., DeBoer, C., Moghimi, S., Richter, G., McKean-Cowdin, R., Varma, R.
2020; 3 (2): 130-138
- **3D printing novel PPE for response to COVID-19 related shortages**
Fields, B., Demirjian, N., DeBoer, C., Stemen, D., Hwang, D.
16th International Symposium on Medical Information Processing and Analysis.
2020
- **Anterior segment optical coherence tomography. In: Varma R, Xu B, Richter G, Reznik A eds**
Xu, B., Shan, J., DeBoer, C., Aung, T.
Anterior segment optical coherence tomography.
2020
- **Anterior Segment Optical Coherence Tomography: Applications for Clinical Care and Scientific Research** *ASIA-PACIFIC JOURNAL OF OPTHALMOLOGY*
Shan, J., DeBoer, C., Xu, B. Y.
2019; 8 (2): 146-157
- **Biomimetic accommodating intraocular lens using a valved deformable liquid balloon**
DeBoer, C., Lee, J., Wheelan, B., Cable, C., Shi, W., Tai, Y.
IEEE Transactions on Biomedical Engineering.
2015
- **BIOMIMETIC ACCOMMODATING INTRAOCULAR LENS (IOL)**
DeBoer, C., Do, H., Lee, J., Humayun, M., Tai, Y., IEEE
IEEE.2012
- **A NEW DUAL PORT CUTTER SYSTEM FOR VITRECTOMY SURGERY** *RETINA-THE JOURNAL OF RETINAL AND VITREOUS DISEASES*
Lima, L. H., DeBoer, C., McCormick, M., Kerns, R., Bhadri, P., Humayun, M. S.
2010; 30 (9): 1515-1519
- **An improved understanding of vitreous cutting. In: Saxena S, Sadda S, eds**
Chong, L., Magalhaes Jr, O., DeBoer, C.
Emerging Technologies in Retinal Disease. St. Louis, MO: Jaypee Brothers Medical.
2009
- **Guillotine performance: duty cycle analysis of vitrectomy systems**
Magalhaes Jr, O., Chong, L., DeBoer, C., Bhadri, P., Kerns, R., Barnes, A.

Retinal Cases and Brief Reports.
2009

- **25-Gauge Instrumentation: Engineering Challenges and Tradeoffs** *VITREO-RETINAL SURGERY*
Barnes, A. C., DeBoer, C. M., Bhadri, P. R., Magalhaes, O., Kerns, R. M., McCormick, M. T., Chong, L. P., Humayun, M. S., Rizzo, S., Patelli, F., Chow, D. R.
2009: 9-29
- **Port geometry and its influence on vitrectomy** *RETINA-THE JOURNAL OF RETINAL AND VITREOUS DISEASES*
DeBoer, C., Fang, S., Lima, L. H., McCormick, M., Bhadri, P., Kerns, R., Humayun, M.
2008; 28 (8): 1061-1067
- **Vitreous dynamics - Vitreous flow analysis in 20-, 23-, and 25-gauge cutters** *RETINA-THE JOURNAL OF RETINAL AND VITREOUS DISEASES*
Magalhaes, O., Chong, L., Deboer, C., Bhadri, P., Kerns, R., Barnes, A., Fang, S., Humayun, M.
2008; 28 (2): 236-241
- **Performance analysis of new-generation vitreous cutters**
Fang, S. Y., DeBoer, C. T., Humayun, M. S.
SPRINGER.2008: 61-67
- **Evaluation of lens hardness in cataract surgery using high-frequency ultrasonic parameters in vitro** *ULTRASOUND IN MEDICINE AND BIOLOGY*
Huang, C., Ameri, H., DeBoer, C., Rowley, A. P., Xu, X., Sun, L., Wang, S., Humayun, M. S., Shung, K.
2007; 33 (10): 1609-1616
- **Evaluation of a stereoscopic camera-based three-dimensional viewing workstation for ophthalmic surgery** *AMERICAN JOURNAL OF OPHTHALMOLOGY*
Bhadri, P. R., Rowley, A. P., Khurana, R. N., Deboer, C. M., Kerns, R. M., Chong, L. P., Humayun, M. S.
2007; 143 (5): 891-892
- **A self-stabilizing lens ring for 25-gauge vitrectomy surgery** *AMERICAN JOURNAL OF OPHTHALMOLOGY*
Chong, L. P., McCormick, M., DeBoer, C., Barnes, A.
2007; 143 (2): 350-351
- **Micro machining techniques, fixturing, and end mill selection in high precision VMC parts**
McCormick, M., DeBoer, C.
Technical Papers - Society of Manufacturing Engineers.
2006
- **Superconductivity (and magnetism) in the nickel borocarbides**
Schmiedeshoff, G. M., De Boer, C., Tompkins, M. V., Beyermann, W. P., Lacerda, A. H., Smith, J. L., Canfield, P. C.
SPRINGER/PLENUM PUBLISHERS.2000: 847-853