

# TALON CHANDLER

## CURRICULUM VITÆ

### Biographical Information

Born: June 24, 1993 in Calgary, Alberta  
Citizenship: Canada  
Address: 302–2045 Dunbar Street  
Vancouver, British Columbia  
V6R 3M5  
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Email: [talonchandler@talonchandler.com](mailto:talonchandler@talonchandler.com)  
Website: [talonchandler.com](http://talonchandler.com)  
Core interests: Image science, microscopy, fluorescence, polarized light,  
experimental design, biological applications.

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### Current Position




**Postdoctoral Scholar** 2021–  
Advisor: Sabrina Leslie  
University of British Columbia




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### Education

- [2] **Ph.D. Medical Physics** 2020  
Dissertation: “Spatio-angular fluorescence microscopy”  
Advisor: Patrick La Rivière  
University of Chicago
- [1] **B.A.Sc. Engineering Physics** 2015  
with Electrical Engineering Specialization, with Distinction  
GPA: 3.93/4.00  
University of British Columbia
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### Publications

- [6] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy III. Constrained angular diffusion, polarized excitation, and high-NA imaging,” *Journal of the Optical Society of America A*, vol. 37, no. 9, pp. 1465–1479, Sep. 2020, ISSN: 1520-8532. DOI: 10.1364/JOSAA.389217.  PDF
- [5] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy II. Paraxial 4f imaging,” *J. Opt. Soc. Am. A*, vol. 36, no. 8, pp. 1346–1360, Aug. 2019. DOI: 10.1364/JOSAA.36.001346.  PDF
- [4] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy I. Basic theory,” *J. Opt. Soc. Am. A*, vol. 36, no. 8, pp. 1334–1345, Aug. 2019. DOI: 10.1364/JOSAA.36.001334.  PDF

- [3] **Chandler, T.**, Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P. J., “Single-fluorophore orientation determination with multiview polarized illumination: Modeling and microscope design,” *Optics Express*, vol. 25, no. 25, 2017. DOI: 10.1364/OE.25.031309.  PDF
- [2] Day, K. J., La Rivière, P. J., **Chandler, T.**, Bindokas, V. P., Ferrier, N. J., Glick, B. S., “Improved deconvolution of very weak confocal signals,” *F1000Research*, vol. 6, no. 787, 2017. DOI: 10.12688/f1000research.11773.1.  PDF
- [1] Shechter, S. M., **Chandler, T.**, Skandari, M., Zalunardo, N., “Cost-effectiveness analysis of vascular access referral policies in CKD,” *American Journal of Kidney Diseases*, vol. 70, no. 3, pp. 368–376, 2017. DOI: 10.1053/j.ajkd.2017.04.020.  PDF

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## Patents

- [2] Eng, P., Issa, N., La Rivière, P.J., **Chandler, T.**, Brickman, J., Proskey, M. 2021  
“Method and System for Mask Disinfection”, US#326860. Pending.
- [1] Shroff, H., Kumar, A., Mehta, S., La Rivière, P.J., Oldenbourg, R., Wu, Y., 2020/12/10  
**Chandler, T.**, “Systems and methods for three-dimensional fluorescence polarization via multiview imaging”, US#16616891.

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## Peer-Reviewed Presentations

- [11] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 09/2019  
La Rivière, P.J., “3D and 4D computational imaging of molecular orientation with multiview polarized fluorescence microscopy,” Electronic Imaging Conference, Burlingame, CA. 20 minute invited talk presented by La Rivière, P.J.
  - [10] Oldenbourg, R., **Chandler, T.**, Tran, M., Guo, M., Shroff, H., La Rivière, P.J., 10/2019  
“Fast and comprehensive mapping of molecular orientation using multi-view polarized fluorescence microscopy,” EMBL Seeing is Believing, Heidelberg, DE. Poster presented by Oldenbourg, R.
  - [9] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 09/2019  
La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized illumination light-sheet dual-view microscope,” Junior Scientist Workshop on Biological Optical Microscopy, Janelia Research Campus, VA. 20 minute talk.
  - [8] **Chandler, T.**, La Rivière, P.J., “Multipole spatio-angular fluorescence microscopy,” 06/2019  
Optics Society of America, Mathematics in Imaging, Munich, DE. 12 minute talk.
- Outstanding Student Presentation Award**
- [7] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 05/2019  
La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized illumination light-sheet dual-view microscope,” Frontiers in Imaging Science, Janelia Research Campus, VA. Poster.
  - [6] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 04/2019  
La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized illumination light-sheet dual-view microscope,” Focus on Microscopy, London, UK. 20 minute talk.

- [5] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., “Spatio-angular imaging with a polarized light sheet dual-view fluorescence microscope,” Advanced Imaging Methods, Berkeley, CA. Poster. 02/2019
  - [4] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., “Spatio-angular imaging with a polarized light sheet dual-view fluorescence microscope,” NSF Workshop on Enabling Biological Discovery through Innovations in Imaging and Computation, Woods Hole, MA. Poster. 11/2018
  - [3] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., “Spatio-angular restoration of fluorescence microscopy data,” Optics Society of America, Mathematics in Imaging, Orlando, FL. 12 minute talk. 06/2018
  - [2] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., “Spatio-angular restoration of fluorescence microscopy data,” Gordon Image Science Conference, Easton, MA. 15 minute talk and poster. 06/2018
  - [1] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., “Single-fluorophore orientation determination with multiview polarized illumination microscope,” IEEE International Symposium on Biomedical Imaging (ISBI), Washington, DC. Poster. 04/2018
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## Miscellaneous Presentations

- [9] “Anholonomy: falling cats, parallel parking, and polarized light,” Graduate Program on Medical Physics Journal Club. 30 minute talk. 01/2020
  - [8] “Spatio-angular fluorescence microscopy,” Graduate Program on Medical Physics Colloquium, Chicago, IL. 1 hour talk. 04/2019
  - [7] “Spatio-angular inverse problems in fluorescence microscopy,” Inverse Problems in Imaging Seminar, Chicago, IL. 1 hour talk. 03/2019
  - [6] “DNA microscopy,” Graduate Program on Medical Physics Journal Club. 30 minute talk. 03/2019  
**Carl J. Vyborny Award for Best Journal Club Presentation**
  - [5] “Are lenses necessary?” Graduate Program on Medical Physics Journal Club. 30 minute talk. 03/2018  
**Carl J. Vyborny Award for Best Journal Club Presentation**
  - [4] “Mapping molecular order in living organisms using polarized light microscopy,” with Rudolf Oldenbourg, University of California, Berkeley. 1 hour talk. 10/2017
  - [3] “Mapping molecular order in living organisms using polarized light microscopy,” with Rudolf Oldenbourg, SCIEN Colloquium, Stanford University. 1 hour talk. 10/2017
  - [2] “Evaluating gambles using dynamics,” Graduate Program on Medical Physics Journal Club. 30 minute talk. 04/2017  
**Carl J. Vyborny Award for Best Journal Club Presentation**
  - [1] “Digital holography for radiation dosimetry,” Graduate Program on Medical Physics Journal Club. 30 minute talk. 04/2016
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## Research History

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| [5] | <b>Leslie Lab</b> , University of British Columbia<br>Advisor: Sabrina Leslie                        | 01/2021–        |
| [4] | <b>La Rivière Lab</b> , University of Chicago<br>Advisor: Patrick La Rivière                         | 09/2015–12/2020 |
| [3] | <b>Oldenbourg Lab</b> , Marine Biological Laboratory<br>Advisor: Rudolf Oldenbourg                   | 09/2017–09/2018 |
| [2] | <b>MRI Research Centre</b> , University of British Columbia<br>Advisors: Alex MacKay & Carl Michal   | 04/2014–09/2015 |
| [1] | <b>Centre For Operations Excellence</b> , University of British Columbia<br>Advisor: Steven Shechter | 04/2013–09/2015 |
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## Employment History

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| [2] | <b>Kardium Inc.</b> , Burnaby, BC<br>Junior Engineer          | 09/2013–12/2013 |
| [1] | <b>SRK Consulting Inc.</b> , Vancouver, BC<br>Junior Engineer | 01/2012–04/2012 |
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## Teaching

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|-----|--|------|
| [3] | <b>Introduction to Medical Physics</b> , University of Chicago<br>Teaching Assistant<br>Topics: Medical imaging and radiation therapy<br>Rating: 4.7/5.0 from 11 students                            | 2019 |
| [2] | <b>Medical Imaging 1</b> , University of Chicago<br>Teaching Assistant<br>Topics: X-ray imaging, MRI, image restoration<br>Rating: 5.0/5.0 from 5 students   | 2017 |
| [1] | <b>Mathematics For Medical Physics</b> , University of Chicago<br>Teaching Assistant<br>Topics: Linear systems theory, stochastic processes, image reconstruction<br>Rating: 4.8/5.0 from 5 students | 2016 |
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## Awards

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|------|--|--------|------|
| [12] | Graduate Program on Medical Physics Best Dissertation Award            | \$500  | 2021 |
| [11] | O'Brien–Hasten Research Collaboration Award                            | \$1.5k | 2019 |
| [10] | University of Chicago Graduate Council Travel Award                    | \$600  | 2019 |
| [9]  | University of Chicago Biological Sciences Division Travel Award        | \$500  | 2019 |
| [8]  | University of Chicago Biological Sciences Division Graduate Fellowship | \$30k  | 2016 |

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|-----|--|--------|------|
| [7] | Eastern Irrigation District Graduate Scholarship | \$2k   | 2014 |
| [6] | NSERC Undergraduate Research Award               | \$4k   | 2014 |
| [5] | NSERC Industrial Undergraduate Research Award    | \$4k   | 2013 |
| [4] | Interpipeline Discovery Scholarship              | \$2k   | 2011 |
| [3] | UBC President's Entrance Scholarship             | \$1.5k | 2010 |
| [2] | Alexander Rutherford Scholarship                 | \$2.5k | 2010 |
| [1] | Junior Citizen of the Year, City of Brooks       | -      | 2010 |

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## Professional Membership

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| [4] | The Optical Society of America (OSA)                      | 2017–     |
| [3] | The International Society for Optics and Photonics (SPIE) | 2016–     |
| [2] | The American Association of Physicists in Medicine (AAPM) | 2015–2017 |
| [1] | Engineers & Geoscientists of British Columbia (EGBC)      | 2010–2016 |

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## Reviewing

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|-----|---|-----------|
| [7] | Journal of the Optical Society of America B | 2021      |
| [6] | European Biophysical Journal                | 2019      |
| [5] | Optics Letters                              | 2019–2021 |
| [4] | Nature Communications                       | 2018–2019 |
| [3] | Optica                                      | 2018      |
| [2] | Optics Express                              | 2018–2020 |
| [1] | Journal of the Optical Society of America A | 2017      |

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## Computing

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| <b>Top Language:</b>        | Python   |
| <b>Competent Languages:</b> | C, C++, Bash, MATLAB   |
| <b>Familiar Languages:</b>  | R, Mathematica, HTML/CSS                                     |
| <b>Tools:</b>               | GNU Emacs, L <sup>A</sup> T <sub>E</sub> X, git, VTK, ImageJ |

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## Other Activities

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|------------------------------|--|
| <b>Ultramarathon running</b> | 12 races $\geq$ 26.2 miles                         |
| <b>SCUBA diving</b>          | 15 open water dives, $\sim$ 600 minutes underwater |
| <b>Apiculture</b>            |  |