



Chandra Breanne Curry

Casual - Non-Exempt, SLAC National Accelerator Laboratory

Bio

BIO

Dr. Chandra Breanne Curry is a physicist specializing in ultra-intense laser plasma interactions and high energy density physics. She holds a Ph.D. in Electrical & Computer Engineering from the University of Alberta and a B.Sc. in Honours Physics from McGill. As the LaserNetUS Coordinator since Fall 2021, Dr. Curry leads initiatives advancing high-power laser research in North America. She manages the LaserNetUS program, ensuring alignment with U.S. Department of Energy priorities. With 32 publications and prestigious awards, including the University of Alberta President's Doctoral Prize of Distinction and the NSERC Postgraduate Doctoral Scholarship, Dr. Curry is an emerging leader in her field. Additionally, she serves as Project Scientist for the Matter in Extreme Conditions Upgrade Project at SLAC National Accelerator Laboratory. Dr. Curry is dedicated to advancing scientific frontiers and fostering collaborative research, shaping the landscape of high-power laser research in North America.

HONORS AND AWARDS

- Postdoctoral Fellowship (PDF), Natural Sciences and Engineering Research Council of Canada (NSERC) (declined)
- Postgraduate Doctoral Scholarship (PGS D), Natural Sciences and Engineering Research Council of Canada (NSERC) (2018 - 2021)
- President's Doctoral Prize of Distinction, University of Alberta (2018 - 2021)
- Queen Elizabeth II Graduate Scholarship – Doctoral, University of Alberta (2017)
- Queen Elizabeth II Graduate Scholarship – Master's, University of Alberta (2016)
- Undergraduate Research Award (UARE-Canada), University of Alberta (declined)

EDUCATION AND CERTIFICATIONS

- PhD, University of Alberta , Electrical & Computer Engineering
- BSc, McGill University , Honours Physics

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Conference Organizer, 2023 LaserNetUS Data & Diagnostics Workshop (2023)
- Conference Co-Chair, 2023 LaserNetUS Users' Meeting (2023)
- Meeting Co-Chair, 2023 LaserNetUS Cycle 5 Proposal Review Meeting (2023)
- Local Organizing Committee Chair, 2022 Basic Research Needs Workshop on Inertial Fusion Energy (2022)
- Conference Co-Chair, 2022 LaserNetUS Users' Meeting (2022)
- Organizing Committee Member, 9th International Workshop on Warm Dense Matter (2016 - 2017)
- Organizing Committee Member, 43rd IEEE International Conference on Plasma Science (2015 - 2016)
- McGill Society of Physics Students (2012 - 2014)

- McGill Faculty of Science Committee Member (2012 - 2014)

Publications

PUBLICATIONS

- **Time-resolved X-ray imaging of the current filamentation instability in solid-density plasmas.** *Nature communications*
Schoenwaelder, C., Marret, A., Assenbaum, S., Curry, C. B., Cunningham, E., Dyer, G., Funk, S., Glenn, G. D., Goede, S., Khaghani, D., Rehwald, M., Schramm, U., Treffert, et al
2026
- **Ultra-short pulse laser acceleration of protons to 80 MeV from cryogenic hydrogen jets tailored to near-critical density.** *Nature communications*
Rehwald, M., Assenbaum, S., Bernert, C., Brack, F., Bussmann, M., Cowan, T. E., Curry, C. B., Fiuza, F., Garten, M., Gaus, L., Gauthier, M., Gode, S., Gothel, et al
2023; 14 (1): 4009
- **Summary report from the mini-conference on workforce development through research-based, plasma-focused activities** *PHYSICS OF PLASMAS*
Kostadinova, E. G. G., Greco, S., Murdock, M., Barraza-Valdez, E., Hasson, H. R. R., West-Abdallah, I. Z. Z., Harper, C. A. A., Brown, K., Scime, E., Dollar, F., Greninger, C., Stanley, B., Oxford, et al
2023; 30 (6)
- **Automated control and optimization of laser-driven ion acceleration** *HIGH POWER LASER SCIENCE AND ENGINEERING*
Loughran, B., Streeter, M. V., Ahmed, H., Astbury, S., Balcazar, M., Borghesi, M., Bourgeois, N., Curry, C. B., Dann, S. D., Dilorio, S., Dover, N. P., Dzelzainis, T., Ettliger, et al
2023; 11
- **Ultrafast time-resolved 2D imaging of laser-driven fast electron transport in solid density matter using an x-ray free electron laser.** *The Review of scientific instruments*
Sawada, H., Yabuuchi, T., Higashi, N., Iwasaki, T., Kawasaki, K., Maeda, Y., Izumi, T., Nakagawa, Y., Shigemori, K., Sakawa, Y., Curry, C. B., Frost, M., Iwata, et al
2023; 94 (3): 033511
- **Transient Laser-Induced Breakdown of Dielectrics in Ultrarelativistic Laser-Solid Interactions** *PHYSICAL REVIEW APPLIED*
Bernert, C., Assenbaum, S., Bock, S., Brack, F., Cowan, T. E., Curry, C. B., Garten, M., Gaus, L., Gauthier, M., Gebhardt, R., Goede, S., Glenzer, S. H., Helbig, et al
2023; 19 (1)
- **High deuteron and neutron yields from the interaction of a petawatt laser with a cryogenic deuterium jet** *FRONTIERS IN PHYSICS*
Jiao, X., Curry, C. B., Gauthier, M., Chou, H. J., Fiuza, F., Kim, J. B., Phan, D. D., McCary, E., Galtier, E. C., Dyer, G. M., Ofori-Okai, B. K., Labun, L., Labun, et al
2023; 10
- **Ambient-temperature liquid jet targets for high-repetition-rate HED discovery science** *PHYSICS OF PLASMAS*
Treffert, F., Glenn, G. D., Chou, H. J., Crissman, C., Curry, C. B., DePonte, D. P., Fiuza, F., Hartley, N. J., Ofori-Okai, B., Roth, M., Glenzer, S. H., Gauthier, M.
2022; 29 (12)
- **Multi-frame, ultrafast, x-ray microscope for imaging shockwave dynamics.** *Optics express*
Hodge, D. S., Leong, A. F., Pandolfi, S., Kurzer-Ogul, K., Montgomery, D. S., Aluie, H., Bolme, C., Carver, T., Cunningham, E., Curry, C. B., Dayton, M., Decker, F., Galtier, et al
2022; 30 (21): 38405-38422
- **Novel fabrication tools for dynamic compression targets with engineered voids using photolithography methods** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Pandolfi, S., Carver, T., Hodge, D., Leong, A. F. T., Kurzer-Ogul, K., Hart, P., Galtier, E., Khaghani, D., Cunningham, E., Nagler, B., Lee, H., Bolme, C., Ramos, et al
2022; 93 (10)
- **Novel fabrication tools for dynamic compression targets with engineered voids using photolithography methods.** *The Review of scientific instruments*

- Pandolfi, S., Carver, T., Hodge, D., Leong, A. F., Kurzer-Ogul, K., Hart, P., Galtier, E., Khaghani, D., Cunningham, E., Nagler, B., Lee, H. J., Bolme, C., Ramos, et al
2022; 93 (10): 103502
- **High-repetition-rate, multi-MeV deuteron acceleration from converging heavy water microjets at laser intensities of 10(21) W/cm²** *APPLIED PHYSICS LETTERS*
Treffert, F., Curry, C. B., Chou, H. J., Crissman, C. J., DePonte, D. P., Fiuza, F., Glenn, G. D., Hollinger, R. C., Nedbailo, R., Park, J., Schoenwaelder, C., Song, H., Wang, et al
2022; 121 (7)
 - **Off-harmonic optical probing of high intensity laser plasma expansion dynamics in solid density hydrogen jets** *SCIENTIFIC REPORTS*
Bernert, C., Assenbaum, S., Brack, F., Cowan, T. E., Curry, C. B., Garten, M., Gaus, L., Gauthier, M., Goede, S., Goethel, I., Glenzer, S. H., Kluge, T., Kraft, et al
2022; 12 (1): 7287
 - **Investigation of hard x-ray emissions from terawatt laser-irradiated foils at the Matter in Extreme Conditions instrument of the Linac Coherent Light Source** *JOURNAL OF INSTRUMENTATION*
Fletcher, L. B., Curry, C. B., Gauthier, M., Glenn, G. D., Chen, Z., Cunningham, E., Descamps, A., Frost, M., Galtier, E. C., Heimann, P., Kim, J. B., Mo, M., Ofori-Okai, et al
2022; 17 (4)
 - **Probing ultrafast laser plasma processes inside solids with resonant small-angle x-ray scattering** *PHYSICAL REVIEW RESEARCH*
Gaus, L., Bischoff, L., Bussmann, M., Cunningham, E., Curry, C. B., Juncheng, E., Galtier, E., Gauthier, M., Garcia, A., Garten, M., Glenzer, S., Grenzer, J., Gutt, et al
2021; 3 (4)
 - **Observation of a highly conductive warm dense state of water with ultrafast pump-probe free-electron-laser measurements** *MATTER AND RADIATION AT EXTREMES*
Chen, Z., Na, X., Curry, C. B., Liang, S., French, M., Descamps, A., DePonte, D. P., Koralek, J. D., Kim, J. B., Lebovitz, S., Nakatsutsumi, M., Ofori-Okai, B. K., Redmer, et al
2021; 6 (5)
 - **Ultrafast multi-cycle terahertz measurements of the electrical conductivity in strongly excited solids.** *Nature communications*
Chen, Z., Curry, C. B., Zhang, R., Treffert, F., Stojanovic, N., Toleikis, S., Pan, R., Gauthier, M., Zapolnova, E., Seipp, L. E., Weinmann, A., Mo, M. Z., Kim, et al
2021; 12 (1): 1638
 - **2D monochromatic x-ray imaging for beam monitoring of an x-ray free electron laser and a high-power femtosecond laser** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Sawada, H., Trzaska, J., Curry, C. B., Gauthier, M., Fletcher, L. B., Jiang, S., Lee, H. J., Galtier, E. C., Cunningham, E., Dyer, G., Daykin, T. S., Chen, L., Salinas, et al
2021; 92 (1): 013510
 - **Optimization of radiochromic film stacks to diagnose high-flux laser-accelerated proton beams** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Curry, C. B., Dunning, C. S., Gauthier, M., Chou, H. J., Fiuza, F., Glenn, G. D., Tsui, Y. Y., Bazalova-Carter, M., Glenzer, S. H.
2020; 91 (9): 093303
 - **Development of a Platform at the Matter in Extreme Conditions End Station for Characterization of Matter Heated by Intense Laser-Accelerated Protons** *IEEE TRANSACTIONS ON PLASMA SCIENCE*
Bhutwala, K., Bailly-Grandvaux, M., Kim, J., Dozieres, M., Galtier, E., Curry, C. B., Gauthier, M., Cunningham, E., Lee, H., Forestier-Colleoni, P., Higginson, A., Aybar, N., Hua, et al
2020; 48 (8): 2751-2758
 - **Cryogenic Liquid Jets for High Repetition Rate Discovery Science.** *Journal of visualized experiments : JoVE*
Curry, C. B., Schoenwaelder, C., Goede, S., Kim, J. B., Rehwald, M., Treffert, F., Zeil, K., Glenzer, S. H., Gauthier, M.
2020
 - **Laser cutting apparatus for high energy density and diamond anvil cell science** *JOURNAL OF INSTRUMENTATION*
Frost, M., Curry, C. B., Glenzer, S. H.
2020; 15 (5)
 - **Author Correction: Generation and characterization of ultrathin free-flowing liquid sheets.** *Nature communications*

- Koralek, J. D., Kim, J. B., Bruza, P., Curry, C. B., Chen, Z., Bechtel, H. A., Cordones, A. A., Sperling, P., Toleikis, S., Kern, J. F., Moeller, S. P., Glenzer, S. H., DePonte, et al
2019; 10 (1): 1615
- **Improved large-energy-range magnetic electron-positron spectrometer for experiments with the Texas Petawatt Laser** *JOURNAL OF INSTRUMENTATION*
Glenn, G. D., Tiwari, G., Dyer, G., Curry, C. B., Donovan, M. E., Gaul, E., Gauthier, M., Glenzer, S. H., Gordon, J., Hegelich, B. M., Martinez, M., McCary, E., Spinksa, et al
2019; 14
 - **Generation of ultrathin free-flowing liquid sheets**
Koralek, J., Kim, J. B., Bruza, P., Curry, C., Chen, Z., Bechtel, H. A., Cordones, A. A., Sperling, P., Toleikis, S., Kern, J. F., Moeller, S. P., Glenzer, S. H., DePonte, et al
edited by Tschentscher, T., Patthey, L., Tiedtke, K., Zangrando, M.
SPIE-INT SOC OPTICAL ENGINEERING.2019
 - **All-optical structuring of laser-driven proton beam profiles** *NATURE COMMUNICATIONS*
Obst-Huebl, L., Ziegler, T., Brack, F., Branco, J., Bussmann, M., Cowan, T. E., Curry, C. B., Fiuza, F., Garten, M., Gauthier, M., Goede, S., Glenzer, S. H., Huebl, et al
2018; 9: 5292
 - **Setup for meV-resolution inelastic X-ray scattering measurements and X-ray diffraction at the Matter in Extreme Conditions endstation at the Linac Coherent Light Source (vol 89, 10F104, 2018)** *REVIEW OF SCIENTIFIC INSTRUMENTS*
McBride, E. E., White, T. G., Descamps, A., Fletcher, L. B., Appel, K., Condamine, F., Curry, C. B., Dallari, F., Funk, S., Galtier, E., Gamboa, E. J., Gauthier, M., Goede, et al
2018; 89 (12): 129901
 - **Setup for meV-resolution inelastic X-ray scattering measurements and X-ray diffraction at the Matter in Extreme Conditions endstation at the Linac Coherent Light Source**
McBride, E. E., White, T. G., Descamps, A., Fletcher, L. B., Appel, K., Condamine, F. P., Curry, C. B., Dallari, F., Funk, S., Galtier, E., Gauthier, M., Goede, S., Kim, et al
AMER INST PHYSICS.2018: 10F104
 - **Author Correction: Generation and characterization of ultrathin free-flowing liquid sheets.** *Nature communications*
Koralek, J. D., Kim, J. B., Bruza, P., Curry, C. B., Chen, Z., Bechtel, H. A., Cordones, A. A., Sperling, P., Toleikis, S., Kern, J. F., Moeller, S. P., Glenzer, S. H., DePonte, et al
2018; 9 (1): 2860
 - **Optical probing of high intensity laser interaction with micron-sized cryogenic hydrogen jets** *PLASMA PHYSICS AND CONTROLLED FUSION*
Ziegler, T., Rehwald, M., Obst, L., Bernert, C., Brack, F., Curry, C. B., Gauthier, M., Glenzer, S. H., Goede, S., Kazak, L., Kraft, S. D., Kuntzsch, M., Loeser, et al
2018; 60 (7)
 - **Generation and characterization of ultrathin free-flowing liquid sheets** *NATURE COMMUNICATIONS*
Koralek, J. D., Kim, J. B., Bruza, P., Curry, C. B., Chen, Z., Bechtel, H. A., Cordones, A. A., Sperling, P., Toleikis, S., Kern, J. F., Moeller, S. P., Glenzer, S. H., DePonte, et al
2018; 9: 1353
 - **High repetition rate, multi-MeV proton source from cryogenic hydrogen jets** *APPLIED PHYSICS LETTERS*
Gauthier, M., Curry, C. B., Goede, S., Brack, F., Kim, J. B., MacDonald, M. J., Metzkes, J., Obst, L., Rehwald, M., Roedel, C., Schlenvoigt, H., Schumaker, W., Schramm, et al
2017; 111 (11)
 - **Efficient laser-driven proton acceleration from cylindrical and planar cryogenic hydrogen jets** *SCIENTIFIC REPORTS*
Obst, L., Goede, S., Rehwald, M., Brack, F., Branco, J., Bock, S., Bussmann, M., Cowan, T. E., Curry, C. B., Fiuza, F., Gauthier, M., Gebhardt, R., Helbig, et al
2017; 7: 10248
 - **High-intensity laser-accelerated ion beam produced from cryogenic micro-jet target** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Gauthier, M., Kim, J. B., Curry, C. B., Aurand, B., Gamboa, E. J., Gode, S., Goyon, C., Hazi, A., Kerr, S., Pak, A., PROPP, A., Ramakrishna, B., Ruby, et al

2016; 87 (11)

- **A single-shot spatial chirp method for measuring initial AC conductivity evolution of femtosecond laser pulse excited warm dense matter** *REVIEW OF SCIENTIFIC INSTRUMENTS*

Chen, Z., Hering, P., Brown, S. B., Curry, C., Tsui, Y. Y., Glenzer, S. H.

2016; 87 (11)

- **Matter under extreme conditions experiments at the Linac Coherent Light Source** *JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS*

Glenzer, S. H., Fletcher, L. B., Galtier, E., Nagler, B., Alonso-Mori, R., Barbrel, B., Brown, S. B., Chapman, D. A., Chen, Z., Curry, C. B., Fiuza, F., Gamboa, E., Gauthier, et al

2016; 49 (9)