**CMBE Council Member – Self Nomination Statement**

**Meenal Datta, Ph.D.**, University of Notre Dame

I am applying to serve as a Council Member for the Cellular and Molecular Bioengineering (CMBE) Special Interest Group (SIG) of the Biomedical Engineering Society (BMES). My commitment to CMBE and BMES is rooted in sustained professional service, interdisciplinary scholarship, and a strong dedication to mentoring and community-building within BME.

Since beginning my independent faculty career in 2021, I have been actively engaged in service to BMES. My contributions include abstract reviewing, session leadership, and programmatic organization at Annual Meetings. In 2021, I served as Session Chair for "Cancer Technologies Virtual Track I," where I emphasized thoughtful speaker engagement and mentorship of early-career researchers. In 2024, I served as Co-Track Chair for the "Drug Delivery" track, co-organizing more than 200 abstracts into twelve themed sessions and overseeing speaker invitations, session chairs, and on-site execution

My service extends beyond conference leadership to sustained engagement in multidisciplinary research, mentorship, and translational initiatives. My research program integrates mechanics, immunology, cancer biology, and space biosciences, resulting in sustained contributions to CMBE-focused scholarship and training. Recognition through the CMBE Rising Star Junior Faculty Award (2026), the Rita Schaffer Young Investigator Award (2025), and the BMES CMBE Young Innovator Award (2024) has motivated my commitment to give back to this community.

I am particularly motivated to serve on the CMBE Council as this field encompasses much of my research at the intersection of engineering and biomedical sciences – for example, my work in mechano-immunology to understand the impact of tissue-length solid mechanical forces on immune cells. My research and teaching emphasize rigorous mechanistic understanding of these interactions alongside translational relevance, reflecting the core mission of CMBE. Through Council service, I hope to help shape programming, initiatives, and mentoring structures that support researchers at all career stages and across disciplinary boundaries.

A central component of my recent service has been advancing biomedical engineering research in space. I organized and chaired the 2025 BMES special session "BMES in Space," which brought together a panel of pioneers in the field to discuss emerging opportunities in microgravity research for the advancement of BME. This work reflects my broader efforts to integrate space-based biomedical research into mainstream BME discourse and to build bridges between traditional CMBE approaches and emerging research platforms.

My vision for CMBE centers on three interconnected priorities. First, I seek to strengthen multidisciplinary and translational research by promoting collaborations that integrate engineering, biology, medicine, and data science. Second, I aim to expand academic-industry and -regulatory partnerships to enhance innovation, workforce development, and translational impact. Third, I am committed to advancing "CMBE in Space" as an emerging frontier, leveraging microgravity platforms for improved tissue modeling, drug development, and mechanobiology studies in ways not achievable under Earth's gravity.

Across these priorities, mentorship and inclusion remain central to my vision. Throughout my service, I have prioritized supporting students, postdoctoral fellows, and early-career faculty, particularly those navigating multidisciplinary and nontraditional career paths. As a CMBE Council Member, I will work to expand mentoring networks, enhance visibility for junior investigators, and promote diverse leadership pipelines. I am eager to contribute my experience, energy, and perspective to advancing the mission of CMBE and supporting the continued growth of our community.

# Meenal Datta, Ph.D.

***Curriculum Vitae***

**Updated:** Jan. 15, 2026

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## PRIMARY APPOINTMENTS

2025- Jane Schoelch DeFlorio Collegiate Professor of Aerospace and Mechanical Engineering, University of Notre Dame, Notre Dame, IN (*inaugural chair*)

2021- Assistant Professor, Department of Aerospace and Mechanical Engineering, Department of Chemical and Biomolecular Engineering (*concurrent*), Bioengineering Graduate Program, Materials Science and Engineering Program, University of Notre Dame, Notre Dame, IN

2018-2021 American Association of Cancer Research-Loxo Oncology Postdoctoral Fellow, Harvard Medical School/Massachusetts General Hospital, Boston, MA

## EDUCATION

2018 Ph.D., Chemical and Biological Engineering, Tufts University, Medford, MA

2013 M.S., Chemical and Biological Engineering, Tufts University, Medford, MA

2010 B.S.E., Chemical Engineering, University of Massachusetts, Amherst, MA

## AWARDS AND HONORS

2026 Rising Star Junior Faculty Award from the Cell and Molecular Bioengineering Conference of the Biomedical Engineering Society

2025 Emerging Leader, Indiana Clinical and Translational Sciences Institute

2025 Rita Schaffer Young Investigator Award from the Biomedical Engineering Society

2025 Rising Star of Mechanical Engineering Award from the American Society of Mechanical Engineers

2025 Nominated Institutional Representative from the University of Notre Dame for the Medical Technology Enterprise Consortium (MTEC) – Defense Medical Innovation 2025 Summit (*declined*)

2024 Young Innovator Award in Cellular and Molecular Bioengineering from the Biomedical Engineering Society

2023 2$^{nd}$ place finalist for the Annual Cozzarelli Prize from the Proceedings of the National Academy of Sciences (*Class IV*)

2023 Elected Faculty Representative from the University of Notre Dame for the Rosalind Franklin Society Council of Academic Institutions

## GRANTS

2025-2027 Naughton Faculty Accelerator Program Grant

2025-2028 Department of the Air Force, Air Force Office of Scientific Research Young Investigator Program (AFOSR YIP), Space BioSciences Division

2025-2027 Bioengineering and Life Sciences Initiative Collaborative Multidisciplinary Teams Grant

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| 2024-2025 | Department of the Air Force, Air Force Office of Scientific Research (AFOSR), Space BioSciences Division BAA Award |
| 2024-2027 | NSF/CASIS Collaboration on Tissue Engineering and Mechanobiology on the International Space Station (ISS) to Benefit Life on Earth |
| 2024-2025 | Warren Center for Drug Discovery Grant (for Epigenetic Therapies) |
| 2023-2025 | Harper Cancer Research Institute Cancer Cure Venture Grant |
| 2023-2028 | NIH/NIGMS R35 Maximizing Investigators' Research Award for Early-Stage Investigators |
| 2023-2025 | NDnano Center Development Grant |
| 2023-2025 | Lucy Family Institute for Data and Society Health Equity Data Lab Grant |
| 2023-2025 | University of Notre Dame Seed for Transformative Interdisciplinary Research Grant |
| 2022-2023 | Berthiaume Institute for Precision Health Discovery Fund Harvest Grant |
| 2022-2023 | Oak Ridge Associated Universities Ralph E. Powe Junior Faculty Enhancement Award |
| 2022-2023 | Warren Center for Drug Discovery Grant (for Immunotherapies) |
| 2022-2023 | Indiana Clinical and Translational Sciences Institute Core Pilot Grant |
| 2021-2024 | NIH/NCI K22 Career Transition Award |
| 2019-2021 | American Association of Cancer Research-Loxo Oncology Pediatric Cancer Research Postdoctoral Fellowship |
| 2016-2018 | NIH/NHLBI F31 Ruth L. Kirschstein National Research Service Award Predoctoral Fellowship |
| 2016, 2017 | Helmsley Charitable Trust Fellowship |

## PEER-REVIEWED PUBLICATIONS

***Google Scholar* statistics: *H-index* = 24, *i10-index* = 33; *citations* = 4858**

**Authorship Legend**: * = first/lead author; # = corresponding/senior author; a = Datta Lab postdoctoral fellow or staff scientist; b = Datta Lab graduate student; c = Datta Lab undergraduate student.

1. **Najera J.**[b], Chen H., Howard S., **Datta M.**[#] "Using fluorescence lifetime imaging microscopy to probe the metabolic peritumor microenvironment and beyond," *Cellular and Molecular Bioengineering*, under review. (*Invited as part of Festschrift in honor of Rakesh K. Jain.)*
2. **Najera J.**[*,b], Chen H.[*], **Batista B.**[c], Ketchum F., Ali A., Zorlutuna P., Howard S.[#], and **Datta M.**[#] "Instant fluorescent lifetime imaging microscopy reveals mechano-metabolic reprogramming of stromal cells in breast cancer peritumoral microenvironments," *iScience*, under review. Preprint available on bioRxiv.
3. Xu W., Gu Z., Gan D., **Zarodniuk M.**[b]**, Healy C.**[c], Lu X., Li J., **Datta M.**[#], and Lu X.[#] "Post-spaceflight analysis reveals enduring reprogramming of the murine immune system by microgravity," *Communications Biology*, under review.
4. O'Neill W.D.[#], **Najera J.**[b], and **Datta M**. "Image model random field representations classify dementia states and affirm the dominance of degrees of freedom in combating noise," *Scientific Reports*, under review. Preprint available on Research Square.
5. Jafarabadi F., **Datta M**., and Holland M.A.[#] "Secondary damage in traumatic brain injury: bridging the gaps through computational approaches," *Biomechanics and Modeling in Mechanobiology,* in revision.
6. Cao J., **Onwudiwe K.**[a], Hu J., **Datta M.**, and Soboyejo W[#]. "Distinguishing cancerous from non-malignant breast cells using viscoelastic creep and functional principal component analysis," *Journal of the Mechanical Behavior of Biomedical Materials,* in revision.
7. **Zarodniuk M.**[*,b], Wenninger A.[*], **Najera J.**[b], Lee J., **Markillie J.**[c], MacKenzie C., Bergqvist-Patzke J., **Batista B.**[c]**, Panchbhavi M.**[c]**, Rumbach R.**[a]**, Burchett A.**[b], Sander C., **Datta M.**[#], and Patzke C.[#] (2026) "Mechanical compression induces neuronal apoptosis, reduces synaptic activity, and promotes glial

neuroinflammation in mice and humans," *Proceedings of the National Academy of Sciences*, E-pub ahead of print: https://www.pnas.org/doi/10.1073/pnas.2513172122.

8. **Burchett A.A.[b]**, Chen H., **Najera J.**[b], Howard S., and **Datta M.[#]** (2025), "Chronic compression drives macrophages toward a pathological pro-tumor state," *Frontiers in Immunology,* E-pub ahead of print: https://doi.org/10.3389/fimmu.2025.1626024.
9. **Asaadi Tehrani G.[a], Kubick R.N.[c], Zarodniuk M.[b]**, and **Datta M[#]**. (2025) "Histone deacetylase inhibitors sensitize glioblastoma models to temozolomide and reprogram immunosuppressive myeloid cells," *Scientific Reports*, **15**: 36804.
10. Shanmugarajan K.*, Lee S.*, Subudhi S., Kumar A.S., Amoozgar Z., Posada J., Lindeman N., Lei P., Duquette M., Roberge S., Huang P., Andersson P., **Datta M.**, Munn L.L., Fukumura D., and Jain R.K.[#] (2025) "Wnt inhibition alleviates resistance to immune checkpoint blockade therapy in glioblastoma," *Proceedings of the National Academy of Sciences*, E-pub ahead of print: https://www.pnas.org/doi/10.1073/pnas.2414941122. Featured in PNAS Commentary, Labroots, Medical Xpress, Bioengineer.org, ScienMag, Mirage News, EurekAlert!, Mass General Brigham News, and OncoDaily.
11. Nia H.T.[*], **Datta M.**[*], Kumar A.S.[*], **Siri, S.**[*,a], Ferraro, G.B., Chatterjee, S., McHugh, J.M., Ng P.R., West T.R., Rapalino O., Choi B.D., Nahed B.V.[#] , Munn L.L.[#], and R.K. Jain[#] (2025) "Solid stress estimations via intraoperative 3D navigation in patients with brain tumors," *Clinical Cancer Research*, in press. E-pub ahead of print: https://doi.org/10.1158/1078-0432.CCR-24-4159. Featured in Notre Dame News, Inside Precision Medicine, Science Magazine, Bioengineer, eCancer, and News Medical.
12. Sharma H., Yadav V., **Burchett A.A.[b]**, Shi T., Senapati S., **Datta M.**, Chang H-C[#]. (2025) "A Mem-dELISA platform for dual color and ultrasensitive digital detection of colocalized proteins on extracellular vesicles," *Biosensors and Bioelectronics*, **267**: 116848.
13. **Burchett A.A.[b], Siri S.[a]**, Lu X., Li J., **Datta M[#]**. (2024) "Novel 3-D macrophage spheroids reveal immunomechanical regulation of solid stresses and anti-inflammatory immune function," *Cellular and Molecular Bioengineering*, **17**: 329-344. Part of special issue for **2024 BMES CMBE Young Innovator Awardees**. Featured in Notre Dame News.
14. Morsby J.J., Zhang Z., **Burchett A.A.[b]**, **Datta M.[#]**, and Smith B.D.[#], (2024) "Ratiometric near-infrared fluorescent probe for nitroreductase activity enables 3D imaging of hypoxic cells within intact tumor spheroids," *Chemical Science*, **15**: 3633-3639.
15. **Datta M.[#]**, Via L.E., Dartois V., Xu L. Barry C.E.[#], and Jain R.K.[#] (2024) "Leveraging insights from cancer to improve tuberculosis therapy," *Trends in Molecular Medicine*, **31**: 11-20. Featured in OncoDaily.
16. **Siri S.[a], Burchett A.A.[b]**, and **Datta M.[#]** (2024) "Simulating the impact of tumor mechanical forces on glymphatic networks in the brain parenchyma," *Biomechanics and Modeling in Mechanobiology*, **23**: 2229-2241.
17. **Datta M.**[*,#], Via L.E.[*], Dartois V.[*], Weiner D.M., Zimmerman M., Kaya F., Walker A.M., Fleegle J.D., Raplee I.D., McNinch C., **Zarodniuk M.[b]**, Kamoun W.S., Yue C., Kumar A.S., Subudhi S., Xu L., Barry C.E., and Jain R.K.[#] (2024) "Normalizing granuloma vasculature and matrix improves drug delivery and reduces bacterial burden in tuberculosis-infected rabbits," *Proceedings of the National Academy of Sciences*, **121**: e2321336121. Featured in Notre Dame News, EurekAlert!, Medical Xpress, Science Daily, and Genetic Engineering & Biotechnology News.
18. **Onwudiwe K.**[*,a], **Najera J.**[*,b], **Holen L.[c], Burchett A.A.[b], Rodriguez D.[c], Zarodniuk M.[b], Siri S.[a]**, and **Datta M.[#]** (2024) "Single-cell mechanical assay reveals viscoelastic similarities in normal and neoplastic brain cells," *Biophysical Journal*, **123**: 1098-1105.
19. **Datta M.[#]**, **Kennedy M.[c], Siri S.[a]**, Via L.E., Baish J.W., Xu L., Dartois V., Barry C.E., and Jain R.K.[#] (2024) "Mathematical model of oxygen, nutrient, and drug transport in tuberculosis granulomas," *PLoS Computational Biology*, **20**: e1011847.

20. Chen J., Amoozgar Z., Liu X., Aoki S., Liu Z., Shin S., Matsui A., Pu Z., Lei P., **Datta M.**, Zhu L., Ruan Z., Shi L., Staiculescu D., Inoue K., Munn L.L., Fukumura D., Huang P. Bardeesy N., Ho W.J., Jain R.K., and Duda D.G. (2024) "Reprogramming intrahepatic cholangiocarcinoma immune microenvironment by chemotherapy and CTLA-4 blockade enhances anti-PD1 therapy," *Cancer Immunology Research*, **12**: 400-412.
21. **Zarodniuk M.[b], Steele A.[c]**, Lu X., Li J., and **Datta M.[#]** (2023) "CNS tumor stroma transcriptomics identify perivascular fibroblasts as predictors of immunotherapy resistance in glioblastoma patients," *npj Genomic Medicine*, **8**: 35. Featured in Drug Target Review, Science Daily, EurekAlert!, Futurity, ScienceBeta, MedicalXpress, Bioengineer, Technology Networks, and Notre Dame News.
22. **Najera J.[b]**, Rosenberger M.R., and **Datta M.[#]** (2023) "Atomic force microscopy methods to measure tumor mechanical properties," *Cancers*, **15**: 3285.
23. Zhang S.[*], Regan K.[*], **Najera J.[*,b]**, Chu V., Grinstaff M.W., **Datta M.[#]**, and Nia H.T.[#] (2023) "The peritumor microenvironment: physics and immunity," *Trends in Cancer*, **9**: 609-623.
24. **Holen L.[*,c], Onwudiwe K.[*,a], Najera J.[b], Zarodniuk M.[b]**, Obayemi J.D., Soboyejo W.O., and **Datta M.[#]** (2023) "Shear assay protocol for the determination of single-cell material properties," *Journal of Visualized Experiments*, **129**: e65333.
25. Dong X.*, Ren J.*, Amoozgar Z., Lee S., **Datta M.**, Roberge S., Duquette M., Fukumura D., and Jain R.K.[#] (2023) "Anti-VEGF therapy improves EGFR-vIII-CAR-T cell delivery and efficacy in syngeneic glioblastoma models in mice," *Journal for ImmunoTherapy of Cancer*, **11**: e005583. Featured in News Medical, and Scienmag.
26. Iorgulescu J.B., Ruthen N.*, Ahn R.*, Panagioti E.*, Gokhale P.*, Neagu M., Speranza M.C., Eschle B.K., Soroko K.M., Piranlioglu R., **Datta M.**, Krishnan S., Yates K.B., Baker G., Jain R.K., Suvà M.L., Neuberg D., White F.M., Chiocca E.A., Freeman G.J., Sharpe A.H., Wu C.J., and Reardon D.A. (2023) "Antigen presentation deficiency, mesenchymal differentiation, and resistance to immunotherapy in the murine syngeneic CT2A tumor model," *Frontiers in Immunology*, **14**: 1297932.
27. **Datta M.[#]**, Chatterjee S., Perez E.M., Gritsch S., Roberge S., Duquette M., Chen I.X., Naxerova K., Kumar A.S., Ghosh M., Emblem K.E., Ng M.R., Ho. W.W., Kumar P., Krishnan S., Dong X., Speranza M.C., Neagu M.R., Iorgulescu J.B., Huang R.Y., Youssef G., Reardon D.A., Sharpe A.H., Freeman G.J., Suvà M.L.[#], Xu L.[#], and Jain R.K.[#] (2023) "Losartan controls immune checkpoint blocker-induced edema and improves survival in glioblastoma mouse models," *Proceedings of the National Academy of Sciences* **120**: e2219199120. Featured in EurekAlert, eCancer, AZo Life Sciences, ASCO Post, News-Medical, and MGH News.
28. **Onwudiwe K.[*,a], Najera J.[*,b], Siri S.[a]**, and **Datta M**.[#] (2022) "Do tumor mechanical stresses promote cancer immune escape?" *Cells*, **11**: 3840-3849.
29. **Onwudiwe K.[a], Burchett A.A.[b]**, and **Datta M**.[#] (2022) "Mechanical and metabolic interplay in the brain metastatic microenvironment," *Frontiers in Oncology*, **12**: 932285.
30. Ho W.W., Gomes-Santos I.L., Talele N.P., Aoki S., **Datta M.**, Kawagushi K., Ren J., Liu H. Chen I.X., Nojiri T., Chatterjee S., Zhao Y., Millar D.G., Clark J.W., Cobbold M., Pittet M.J., Fukumura D., and Jain R.K. (2021) "Orthotopic liver metastatic mouse models of mismatch repair-proficient colorectal cancer predict clinical inefficacy of immune checkpoint blockade," *Proceedings of the National Academy of Sciences,* **118**: e2105323118.
31. Wu L., Vasilijic S., Sun Y., Chen J., Landegger L.D., Zhang Y., Zhou W., Ren J., Yin Z., Ho W.W., Zhang N., Gao X., **Datta M**., Early S., Brown A., Sagers J.E., Muzikansky A., Zhang L., Stemmer- Rachamimov A., Plotkin S.R., Jain R.K., Stankovic K.M., and Xu L. (2021) "Losartan prevents tumor-induced hearing loss and augments radiation efficacy by normalizing the tumor microenvironment in NF2 schwannoma models," *Science Translational Medicine*, **13**: eabd4816. Featured in EurekAlert, Scienmag, Medical Xpress, GEN, and Hearing Health & Technology Matters.

32. Nia H.T.*, **Datta M.***, Seano G.*, Ho W.W., Roberge S., Huang P., Munn L.L. and Jain R.K. (2020) "In vivo compression and imaging in mouse brain to measure the effects of solid stress," *Nature Protocols,* **15**: 2021-2340. Featured in Nature Community.
33. Flores-Toro J.A., Luo D., Gopinath A., Sarkisian M., Campbell J.J., Charo I.F., Singh R., Schall T.J., **Datta M.**, Jain R.K., Mitchell D.A., and Harrison J.K. (2019) "CCR2 inhibition reduces tumor myeloid cells and unmasks a checkpoint inhibitor effect to slow progression of resistant murine gliomas," *Proceedings of the National Academy of Sciences*, **117**: 1129-1138. Featured in Medical Xpress and EurekAlert.
34. Shigeta K*., **Datta M.***, Hato T.*, Kitahara S.*, Chen I.X., Mamessier E. Matsui A., Ramijiawan R.R., Aoki S., Ochiai H., Bardeesy N., Huang P., Cobbold M., Zhu A.X., Jain R.K., and Duda D.G. (2019) "Dual programmed death receptor-1 and vascular endothelial growth factor receptor-2 blockade promotes vascular normalization and enhances anti-tumor immune responses in HCC," *Hepatology*, **7**: 1247-1261.
35. Zhao Y. Cao J., Melamed A., Worley M., Gockley A., Jones D., Nia H.T., Zhang Y., Stylianopoulos T., Kumar A.S., Mpekris F., **Datta M.**, Sun Y., Wu L., Gao X., Yeku O., del Carmen M., Spriggs D.R., Jain R.K., and Xu L. (2019) "Losartan treatment enhances chemotherapy efficacy and reduces ascites in ovarian cancer models by normalizing the tumor stroma," *Proceedings of the National Academy of Science*, **116**: 2210-2219. Featured in New England Journal of Medicine Journal Watch, Medical News Bulletin, Ovarian Cancer News Today, and Medical Xpress.
36. **Datta M.**, Coussens L.M., Nishikawa H., Hodi F.S., and Jain R.K. (2019) "Reprogramming the Tumor Microenvironment to Improve Immunotherapy: Emerging Strategies and Combination Therapies," *American Society of Clinical Oncology Educational Book,* **39**: 165-174. Featured in Medpage Today.
37. Seano G.*, Nia H.T.*, Emblem, K.E.*, **Datta M**., Ren J., Krishnan S., Kloepper J., Pinho M.C., Ho W.W., Ghosh M., Askoxylakis V., Ferraro G.B., Riedemann L., Gerstner E.R., Batchelor T.T., Wen P.Y., Lin N.U., Grodzinksy A.J., Fukumura D., Huang P., Basish J.W., Padera T.P., Munn L.L., and Jain R.K. (2019) "Solid stress in brain tumours causes neuronal loss and neurological dysfunction and can be reversed by lithium," *Nature Biomedical Engineering*, **3:** 230-245. Featured in Nature Research Bioengineering Community, Neuroscience News, EurekAlert, and Medical Xpress.
38. Arvanitis C.*, Askoxylakis V.*, Guo Y., **Datta M**., Kloepper J., Ferraro G.B., Bernabeu M.O., Fukumura D., McDannold N., and Jain R.K. (2018) "Mechanisms of enhanced drug delivery in brain metastases with focused ultrasound-induced blood-tumor barrier disruption," *Proceedings of the National Academy of Sciences*, **115**: E8717-E8726. Featured in Technology.org, EurekAlert and Medical Xpress.
39. Nia H.T.*, **Datta M**.*, Seano G., Munn L.L., and Jain R.K. (2018) "Quantifying solid stress and elastic energy from excised or *in situ* tumors," *Nature Protocols* **13**: 1091-1105.
40. Carr J.A., Franke D., Caram J.R., Perkinson C.F., Saif M., Askoxylakis V., **Datta M.**, Fukumura D., Jain R.K., Bawendi M.G., and Bruns O.T. (2018) "Shortwave Infrared Fluorescence Imaging with the Clinically Approved Near-Infrared Dye Indocyanine Green," *Proceedings of the National Academy of Science* **115**: 4465-4470. Featured in MIT News and SciTech Daily.
41. Zhang N., Chen J., Ferraro G., Wu L., **Datta M.**, Jain R.K., Plotkin S.R., Stemmer-Rachamimov A., and Xu L. (2017) "Anti-VEGF treatment improves neurological function in tumors of the nervous system," *Experimental Neurology* **299**: 326-333.
42. Levin V.A., Chan J., **Datta M.**, Yee, J.L., and Jain R.K. (2017) "Effect of Angiotensin System Inhibitors on Survival in Newly Diagnosed Glioma Patients and Recurrent Glioblastoma Patients Receiving Chemotherapy and/or Bevacizumab," *Journal of Neuro-Oncology* **134**: 325-330. Featured in Practice Update.
43. Nia H.T., Seano G., Liu H., **Datta M**., Jones D., Rahbari N., Incio J., Chauhan V.P., Jung K., Martin J.D., Askoxylakis V., Padera T.P., Fukumura D., Boucher Y., Hornicek F.J., Grodzinsky A.J., Baish J.W., Munn L.L., and Jain R.K. (2016) "Solid stress and elastic energy as measures of tumor mechanopathology,"*Nature Biomedical Engineering* **1**: 1-11. Featured in Nature News and Views, Nature Reviews Clinical Oncology, Harvard Medical School News & Research, Medical Xpress, and EurekAlert.

44. Zhang N., Gao X., Zhao Y., **Datta M.**, Liu P., and Xu, L. (2016) "Rationally combining anti-VEGF therapy with radiation in *NF2* schwannoma," *Journal of Rare Diseases Research & Treatment* **1**: 51-55.
45. Peterson T.E.*, Kirkpatrick N.D.*, Huang Y.*, Farrar C., Marijt K.A., Kloepper J., **Datta M**., Amoozgar Z., Seano G., Jung K., Kamoun W.S., Vardam T., Snuderl M., Goveia J., Chatterjee S., Batista A., Muzikansky A., Leow C.C., Xu L., Batchelor T.T., Duda D.G., Fukumura D., and Jain R.K. (2016) "Dual inhibition of Ang-2 and VEGF receptors normalizes tumor vasculature and prolongs survival in glioblastoma by altering macrophages," *Proceedings of the National Academy of Sciences* **113**: 4470-4475. Featured in Science Daily.
46. Kloepper J.*, Riedemann L.*, Amoozgar Z.*, Seano G., Susek K.H., Yu V., Dalvie N., Amelung R.L., **Datta M**., Song J.W., Askoxylakis V., Taylor J.W., Lu-Emerson C., Batista A., Kirkpatrick N.D., Snuderl M., Muzikansky A., Stubenrauch K.G., Wakimoto H., Xu L., Munn L.L., Duda D.G., Fukumura D., Batchelor T.T., and Jain R.K. (2016) "Ang-2/VEGF bispecific antibody reprograms macrophages and resident microglia to anti-tumor phenotype and prolongs glioblastoma survival," *Proceedings of the National Academy of Sciences* **113**: 4476-4481. Featured in Science Daily.
47. **Datta M.,** Via L.E., Chen W., Baish J.W., Xu L., Barry C.E., and Jain R.K. (2016) "Mathematical Model of Oxygen Transport in Tuberculosis Granulomas," *Annals of Biomedical Engineering* **44**: 863-872.
48. **Datta M.***, Via L.E.*, Kamoun W.S.*, Liu C., Chen W., Seano G. Weiner D.M., Schimel D., England K., Martin, J.D., Gao X., Xu L., Barry C.E., and Jain R.K. (2015) "Anti-VEGF treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery," *Proceedings of the National Academy of Sciences* **112**: 1827-1832. Featured in Nature Reviews Drug Discovery, PBS NOVA Next, and EurekAlert.
49. **Datta M.**, Jackson M.D., and Datta R. (2011) "Of Mice and Men: Their Diet, Metabolism, and Weight Change," *Chemical Engineering Science* **66:** 4510-4520.

## NON-PEER REVIEWED PUBLICATIONS

50. Chen H., Geresu D., **Najera J.[b]**, **Datta M.**, Howard S. (2025) "Experimental investigation of noise characterization in real-time, multiphoton fluorescence imaging microscopy," SPIE Proceedings Volume 13324, Multiphoton Microscopy in the Biomedical Sciences XXV; 1332406.
51. Chen H., **Najera J.[b], Burchett A.A.[b]**, Geresu D., **Datta M.**, Howard S. (2025) "Two-photon fluorescence lifetime imaging microscopy of autofluorescence under cellular differentiation," SPIE Proceedings Volume 13324, Multiphoton Microscopy in the Biomedical Sciences XXV; 1332401.
52. Chen H., **Najera, J.[b]**, Geresu D., **Datta M.**, Smith C., and Howard S. (2025). "Zero-Shot Denoising for Fluorescence Lifetime Imaging Microscopy with Intensity-Guided Learning," *Proceedings of the Computer Vision and Pattern Recognition Conference*; 4719-4728.
53. **Datta M.** (2022) "Studying the tumor microenvironment under pressure," *Immuno-Oncology Insights,* **3**: 339-344.

## PATENTS

**Datta M., Burchett A.A.**, "Cancer-immune organoid design for immunomechanics research," non-provisional filing by the University of Notre Dame (2025).

**Datta M.**, Xu L., Suva M., Jain R.K. "Preventing Immunotherapy-Induced Edema Using Angiotensin Receptor Blockers," provisional filing by Massachusetts General Hospital (2023).

## IN-SPACE EXPERIMENTS

TBD 2026 Pending cancer organoid drug testing payload anticipated in 2026; implemented with Exobiosphere.

TBD 2026 Pending cancer-immune organoid payload anticipated in 2026; implemented with Space Tango. Featured in Notre Dame News.

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| TBD 2026 | Pending immunomechanics glioblastoma organoid payload on SpaceX's Falcon 9 rocket commercial resupply mission to ISS, as part of my NSF/CASIS award; flight anticipated in June 2026 (SpX-34); implemented with Space Tango. |
| 03/2024 | Cancer-immune glioblastoma organoid payload implemented with Space Tango on Space X's Falcon 9 commercial resupply mission to ISS (SpX-30). Featured in Notre Dame News, WNDU, South Bend Tribune, ABC 57, and NBC as part of Notre Dame's What Would You Fight ads. |

## EXTERNAL INVITED TALKS

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| 04/2026 | Seminar Series, Department of Mechanical and Aerospace Engineering, University of Florida |
| 04/2026 | Seminar Series, Department of Biomedical Engineering, Vanderbilt University |
| 03/2026 | Seminar Series, Department of Biomedical Engineering, University of Iowa |
| 09/2025 | Grand Rounds, Beacon Health System, South Bend, IN |
| 03/2025 | Seminar Series, Department of Chemical and Biological Engineering, Tufts University |
| 07/2024 | Seminar, Medical Education Foundation, Indiana University School of Medicine-South Bend |
| 05/2024 | Department Seminar, Physiology and Biophysics, College of Medicine, University of Illinois at Chicago |
| 04/2024 | Seminar Series, Immuno-Oncology Week 2024, Labroots (virtual) (video recording) |
| 04/2023 | Seminar Series, Center for Physical Genomics & Engineering, Northwestern University (virtual) (video recording) |
| 03/2023 | Seminar Series, Immuno-Oncology Translational Medicine Group, AztraZeneca (virtual) |
| 09/2022 | Seminar Series, Chicago Cytoskeleton, Northwestern University Medical School |
| 05/2022 | Seminar Series, Edwin L. Steele Laboratories for Tumor Biology, Massachusetts General Hospital |
| 06/2021 | Seminar Series, Focused Ultrasound Laboratory, Brigham and Women's Hospital (virtual) |
| 05/2021 | Anne Klibanski Visiting Scholar Lecture Series, Massachusetts General Hospital (virtual) (video and podcast recordings) |
| 05/2021 | Physics Seminar Series, Radiation Oncology, Massachusetts General Hospital (virtual) |
| 02/2021 | Webinar Series, Physical Sciences in Oncology Center, University of Pennsylvania (virtual) |
| 01/2021 | Department Seminar, Chemical Engineering & Materials Science, University of Minnesota (virtual) |
| 01/2021 | Department Seminar, Aerospace & Mechanical Engineering, University of Notre Dame (virtual) |
| 01/2021 | Department Seminar, Chemical Engineering, University of Washington (virtual) |
| 01/2021 | Department Seminar, Bioengineering, Northeastern University (virtual) |
| 12/2020 | Seminar Series, National Chemical Engineering Future Faculty (virtual) |
| 11/2020 | Distinguished Scholar Seminars, Center for Discovery and Innovation, Hackensack Meridian Health (virtual) |
| 11/2020 | Invited Seminar, Genitourinary Cancer Treatment Center, Dana-Farber Cancer Institute (virtual) |
| 10/2020 | Immuno-Oncology Seminar Series, Pelotonia Institute for Immuno-Oncology, The James Comprehensive Cancer Center, The Ohio State University (virtual) |
| 09/2020 | Departmental Retreat, Radiation Oncology, Massachusetts General Hospital (virtual) |
| 11/2018 | Annual Lippard Lecture, Massachusetts General Hospital Cancer Center (Boston, MA) |
| 12/2016 | Departmental Seminar, Chemical and Biological Engineering, Tufts University (Medford, MA) |
| 08/2016 | Brain Tumor Course, Cold Spring Harbor Laboratory (Cold Spring Harbor, NY) |

## INTERNAL INVITED TALKS

04/2026 Master Class, The Rally, Admitted Student Days, University of Notre Dame
09/2025 Science and Technology Showcase, IDEA Center, University of Notre Dame
05/2025 Master Class, Hesburgh Women of Impact Annual Retreat, University of Notre Dame
05/2025 Seminar Series, Engineering Alumni Weekend Lecture, University of Notre Dame
04/2025 Master Class, The Rally, Admitted Student Days, University of Notre Dame
12/2024 Seminar Series, Bioengineering Program, University of Notre Dame
03/2024 Notre Dame in Space (*day-long event organized around Datta Lab ISS launch on 03/21/24*), University of Notre Dame
11/2023 Seminar Series, Warren Center for Drug Discovery, University of Notre Dame
02/2023 Interdisciplinary Science Seminar, College of Science, University of Notre Dame
12/2022 Seminar Series, Notre Dame Nanoscience and Technology (NDnano), University of Notre Dame
Featured in Notre Dame News.
09/2022 Department Seminar, Biological Sciences, University of Notre Dame
03/2022 Annual Cancer Research Day, Harper Cancer Research Institute, University of Notre Dame
03/2022 Interdisciplinary Science Seminar, College of Science, University of Notre Dame
02/2022 Seminar Series, Bioengineering Research Program, Aerospace & Mechanical Engineering, University of Notre Dame

## INVITED CONFERENCE PRESENTATIONS

04/2026 *National Academy of Engineering Regional Meeting, Ohio State University (Columbus, OH)*
Invited Panelist, "Space Health: The Engineering Challenges"

02/2026 *2026 Cancer Engineering Summit, Moffit Cancer Center, Univ. of South Florida (Tampa, FL)*
"Cancer Engineering on Earth and in Space"
***Rising Star Talk***

01/2026 *2026 Annual Meeting, Cell and Molecular Bioengineering SIG, Biomedical Engineering Society (San Juan, PR)*
Award talk, "Mechano-Immunology of Macrophages: On Earth and in Space"
***Winner: Rising Star Junior Faculty Award, CMBE-BMES***

11/2025 *2025 Space Summit West (Laguna Hills, CA)*
"Cancer organoids ad astra: The future is now"

11/2025 *2025 International Mechanical Engineering Congress and Exposition (IMECE), American Society of Mechanical Engineers (ASME) (Memphis, TN)*
"Studying Mechano-Immunology on Earth and in Space"
***Winner: Rising Star of Mechanical Engineering, ASME***

10/2025 *2025 Annual Meeting, Biomedical Engineering Society (San Diego, CA)*
Plenary talk, "Mechano-immunology: On Earth and in Space"
***Winner: Rita Schaffer Young Investigator Award, BMES***

09/2025 *2025 Annual Summit, Center for Cancer Engineering-CURES, The Ohio State University (Columbus, OH)*
Keynote talk, "From mechanics to microgravity: New research paradigms for cancer and immunoengineering"

06/2025 *2025 Biseach Symposium (Galway, Ireland)*
"Mechanics and microgravity: Novel approaches to cancer immunology and cell therapy"

10/2024 *2024 Keystone Space Conference (Pittsburgh, PA)*
Invited Panelist, "Regional Space Research and Development"

10/2024 *2024 Annual Meeting, Biomedical Engineering Society (Baltimore, MD)*
"Repurposing cancer therapies to improve drug delivery and efficacy for tuberculosis"

10/2024 *2024 Annual Meeting, Biomedical Engineering Society (Baltimore, MD)*
Award talk, "Perturbing immunomechanics in a novel 3-D macrophage model"
***Winner: Young Innovator Award, Cellular and Molecular Bioengineering, BMES***

05/2024 *2024 Annual Meeting, Midwest Tumor Microenvironment (Madison, WI)*
"Cancer-immune mechanical interactions"

03/2024 *Rare Disease Conference, Center for Rare & Neglected Diseases (Notre Dame, IN)*
"Immunomechanics in rare cancers"

10/2023 *8th Annual Notre Dame-Purdue Soft Matter & Polymers Symposium (West Lafayette, IN)*
"Abnormal mechanics in brain tumors: Implications for soft matter models"

09/2023 *Inaugural Notre Dame Health Equity Data Forum (Notre Dame, IN)*
"Indigenous cancer disparities: Multi-modal data integration of social and biological determinants of health"

05/2023 *8th Annual Midwest Imaging and Microanalysis Workshop (Notre Dame, IN)*
"Intravital imaging applications in murine models of cancer"

12/2022 *Inaugural IU Brain Tumor Translational Research Day (Indianapolis, IN)*
"Abnormal mechanics in brain tumors: Implications for immunotherapy"

10/2022 *4th Macrophage-Directed Therapies Summit (Boston, MA)*
"Solving Model Biomarker Translatability Challenges to Accelerate Preclinical Development"

10/2022 *4th Macrophage-Directed Therapies Summit (Boston, MA)*
Invited Panelist, "Characterizing the Optimal Biomarker to Benchmark the Goal of Biomarker Discovery"

06/2022 *2nd Tumor Myeloid Directed-Therapies Summit (Boston, MA)*
"Re-engineering myeloid-mechanical interactions in the tumor microenvironment to improve therapeutic outcomes"

## CONTRIBUTED CONFERENCE PRESENTATIONS

12/2025 *American Society for Gravitational and Space Research 2025 Annual Conference (Phoenix, AZ)*
"Microgravity-grown organoids to study glioblastoma-immune interactions in space"

11/2025 *Tissue Engineering and Regenerative Medicine International Society-Americas (TERMIS-AM) 2025 Annual Conference & Exhibition: Next Generation Tools for Regenerative Medicine (Detroit, MI)*
"Beyond microgravity: Considering other biomechanical features of organoids and tissue models in space"

09/2025 *Materials Science & Technology 2025 Annual Meeting (MS&T25); Symposium: Materials and Manufacturing in Low Earth Orbit (and Beyond) (Columbus, OH)*
"Beyond microgravity: Other biomechanical features of organoids and tissue models for in space biomedicine and biomanufacturing"

07/2025 *International Space Station Research & Development Conference (ISSRDC) (Seattle, WA)**
(**Canceled due to 2025 U.S. federal funding disruptions*)
"Beyond microgravity: Considering other biomechanical features of organoids and tissue models for in-space biomedicine and biomanufacturing"

05/2025 *2025 Annual Meeting, Midwest Tumor Microenvironment (Minneapolis, MN)*

"Tumor growth-induced mechanical compression alters metabolic profiles of stromal cells in the breast peritumoral microenvironment"

04/2025 *2025 Annual Meeting and Exposition, Society for Biomaterials (Chicago, IL)**
"Studying and targeting macrophage mechanics on Earth and in space"
(**My graduate student [A.A. Burchett] presented on my behalf due to scheduling conflict.)*

02/2025 *2025 Physical Science of Cancer, Gordon Research Conference (Pomona, CA)*
"Studying immunomechanics and mechano-immunology on Earth and in space"

10/2022 *22nd International Vascular Biology Meeting (Oakland, CA)*
"Losartan prevents immunotherapy-associated edema and enhances survival in glioblastoma"

07/2021 *The Cartography of Cancer: Mapping Tumours in 3D, Beatson International Cancer Conference (virtual)*
"Mechano-cartography: Incorporating mechanical measurements into "omic" workflows"

09/2020 *2020 Annual Meeting, American Institute of Chemical Engineers (virtual)*
"Re-engineering 'immunomechanics' to improve therapeutic outcomes in human disease"
***Selected: Future Faculty Candidate***

09/2020 *Myeloid Cells and Innate Immunity in Solid Tumors, Keystone Symposia (virtual)*
"CCR2 inhibition enhances immune checkpoint blockade efficacy by reducing tumor myeloid cells in resistant glioblastoma models"
***Winner: Keystone Symposia Scholarship***

11/2019 *Tumor Immunology and Immunotherapy, American Association for Cancer Research Special Conference (Boston, MA)*
"Dual PD-1 and VEGFR-2 blockade promotes vascular normalization and enhances anti-tumor immune responses in HCC"
***Winner: Scholar-in-Training Award***

01/2017 *New Developments in Basic Understanding of Tuberculosis, Keystone Symposia (Vancouver, BC)*
"Mathematical Model of Oxygen Transport in Tuberculosis Granulomas"

11/2016 *21st Annual Meeting, Society of Neuro-Oncology (Scottsdale, AZ,)*
"Dual inhibition of Ang-2 and VEGF receptors normalizes tumor vasculature and prolongs survival in glioblastoma by altering macrophages."

06/2016 *Engineering and Physical Sciences in Oncology, American Association for Cancer Research Special Conference (Boston, MA)*
"Mathematical Model of Oxygen Transport in Tuberculosis Granulomas"

02/2016 *Graduate Student Research Symposium, Tufts University (Medford, MA)*
"Anti-VEGF treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery"

04/2015 *Annual Scientific Advisory Committee Day, Massachusetts General Hospital (Boston, MA)*
"Anti-VEGF treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery"
***Winner: Poster of Distinction Award***

03/2015 *Vascular Normalization: Bench to Bedside to Biomarkers, American Association for Cancer Research Special Conference (Orlando, FL)*
"Anti-VEGF treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery"
***Winner: Scholar-in-Training Award***

01/2015 *Host Response in Tuberculosis, Keystone Symposium (Santa Fe, NM)*
"Anti-VEGF treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery"

## TEACHING EXPERIENCE

### Instructor

2025 - Instructor, University of Notre Dame
"Heat Transfer" (*undergraduate core course*)
- Spring 2026: Offered as AME 30334, Section *TBD*
- Spring 2025: Offered as AME 30334, Section 1

2023 - Instructor, University of Notre Dame
"Physiology for Engineers: On Earth and in Space" (*original undergraduate/graduate technical elective*)
- Fall 2025: Offered as AME 30573: "Physiology for Engineers: On Earth and in Space"
- Spring 2024: Offered as AME 40573/60573: "Physiology for Engineers: On Earth and in Space"
- Spring 2023: Offered as AME 40573: "Physiology for Engineers"

2022 - Instructor, University of Notre Dame
"Cancer Engineering" (*original graduate technical elective*)
- Spring 2025: Offered as AME 60676
- Spring 2022: Offered as AME 60676

### Guest Lecturer

04/2025 BIOS 40310 – Cancer Immunotherapy, University of Notre Dame
11/2024 EG 10117 – Engineering Design, University of Notre Dame
04/2024 AME 60556 – Soft Robotics, University of Notre Dame
10/2023 SC30001 – Being Human in STEM, University of Notre Dame
07/2023 Pre-College Program – Life Sciences: Cancer Biology Online, University of Notre Dame
11/2022 ESTM 60228 – Innovative Approach to Cancer Research, University of Notre Dame
11/2022 AME 50572 – Introduction to Biomechanics, University of Notre Dame
04/2022 EE 40332/60332 – Introduction to Biophotonics and Biomedical Optics, University of Notre Dame

### Teaching Assistant

2014 – 2020 Teaching Assistant, Harvard Medical School
"Critical Issues in Tumor Microenvironment" (*graduate course* )

2011 – 2012 Teaching Assistant, Tufts University
"Reaction Kinetics" (*undergraduate course*)
"Biochemical Engineering" (*graduate course*)

## TRAINEES

### Ph.D Students:

2021 - Alice Burchett
2021 - Julian Najera
2022 - Maksym Zarodniuk
2024 - Haley Marco
2024 - Maria Mendes
2025 - Monica Leal Palma
2025 - Alura D'Souza

**M.D. Students:**

2023 – 2025

**Postdoctoral Fellows:**

2021 – 2023 Killian Onwudiwe
2022 – 2024 Saeed Siri
2023 – 2025 Golnaz Asaadi Tehrani
2024 – 2025 Jing Peng

**Staff Scientists:**

2022 - R'nld Rumbach
2025 - Golnaz Asaadi Tehrani

**Undergraduate Students:**

2022 – 2023 McCarthy (Mac) Kennedy
2022 – 2024 Luke Holen
2023 – 2024 Rebecca (Becca) Kubick
2022 – 2025 Bianca Batista
2022 – 2025 Alexander Steele
2022 – 2025 Fionn Lay
2023 – 2025 Megna Panchbhavi
2024 – 2025 Destiny Stewart
2023 - Catherine Healy
2023 - Jack Markillie
2024 - Ina Satpathy
2025 - Jenna Collier
2025 - Lauren Gascon
2025 - Joshua Kim
2025 - Juliette Gaytan
2025 - Aurelia (Rae) Smolen
2025 - Natalia Malaczek
2025 - Jason Riedl
2025 - Carmela Martinez
2025 - Hetvi Patel

**REU Summer Students:**

2023 Wenjun (Anya) Zhao
2023 Brían Lawlor
2023 Dorielis Rodriguez
2023, 2024 Monica Leal Palma
2024 Samantha Yu
2024 Destiny Stewart
2024 Karyme Hernandez Torrens
2024 Aoife McLoughlin
2024 Grace McGraw
2025 Josh Lloyd
2025 Luke Mulvaney
2025 Hetvi Patel
2025 Joshua Kim

2025 Ashlee Wellen

**High School Summer Students:**

2023 Emma Knowlton
2024 Triston Acher
2025 Albert Lu
2025 Ben Kapaun

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## EXTERNAL SERVICE AND SCIENTIFIC OUTREACH

09/2025-12/2025 Session Co-Chair, Cells/Tissues/Organoids, Annual Meeting of the American Society for Gravitational and Space Research (ASGSR), Phoenix, AZ

2025- Abstract Reviewer, Annual Meeting of the American Society for Gravitational and Space Research (ASGSR), multiple years

04/2025- Session Creator, Organizer and Chair, Biomedical Engineering in Space (1 session; 5 panelists), Annual Meeting of the Biomedical Engineering Society, San Diego, CA

12/2024-06/2025 Session Creator, Organizer and Chair, Cancer Mechanics, Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C/ASME SBC) 2025 Annual Meeting, Santa Ana Pueblo, NM

02/2025 Discussion Leader, Engineering Better Models, 2025 Physical Science of Cancer, Gordon Research Conference, Pomona, CA

04/2024 External Committee Member, PhD Dissertation Defense, Sue Zhang (advisor: Dr. Hadi Nia), Boston University

03/2024-10/2024 Track Chair, Drug Delivery Track (12 sessions; 78 talks), Annual Meeting of the Biomedical Engineering Society, Baltimore, MD

12/2023-06/2024 Session Creator, Organizer and Chair, Cancer Mechanics, Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C) 2024 Annual Meeting, Lake Geneva, WI

12/2023- Co-Organizer and -Chair, Cell and Tissue Mechanics Special Interest Group (SIG) Seminar Series, Cancer Tissue Engineering Collaborative (TEC), Physical Sciences-Oncology Network (PS-ON), National Cancer Institute (NCI), virtual (monthly)

12/2023- External Committee Member, Thesis Proposal, Chinedu Okorafor (advisor: Dr. Eno Ebong), Northeastern University

10/2021 Session Chair, Cancer Technologies Track, Annual Meeting of the Biomedical Engineering Society, Orlando, FL

2021- Abstract Reviewer, Annual Meeting of the Biomedical Engineering Society (multiple years)

### Professional Memberships

American Institute of Chemical Engineers, Society of Women Engineers, Biomedical Engineering Society, American Society of Mechanical Engineers, American Association of Cancer Research, North American Vascular Biology Organization, Society for Neuro-Oncology, American Society for Gravitational and Space Research, American Society of Clinical Oncology, NIH Physical Sciences-Oncology Network (Associate Member, Steering Committee), NIH Cancer Tissue Engineering Collaborative, Indiana Clinical and Translational Sciences Institute, Association for Women in Science, Rosalind Franklin Society.

### Journal Editor

06/2025- Associate Editor, *Frontiers in Immunology* - Cancer Immunity and Immunotherapy section, (Impact Factor: 5.7; in the field of immunology, this is the most-cited open-access journal and is #1 in Google Scholar Top Publications)

2024-2025 Guest Editor, Special Issue: Cancer Mechanosensing, *Cancers* (Impact Factor: 5.2)

**Journal Referee**

Cancer Research, Cancer Discovery, Clinical Cancer Research, Cancer Immunology Research, Scientific Reports, Biomechanics and Modeling in Mechanobiology, Journal of Clinical Investigation, Journal of Neuro-Oncology, Cancer Cell, Molecular Cancer Therapeutics, European Journal of Neurology, Neuro-oncology, ACS Nano, Molecular Oncology, Trends in Cancer, Oncotarget, European Molecular Biology Organization, Expert Review of Neurotherapeutics, Journal of Visualized Experiments, PLOS Pathogens, BMC Cancer, Cancer Investigation, Nucleic Acids Research, Neurosurgery, Oncogene, Advanced Materials, Neural Regeneration Research, Molecular Therapy Oncolytics, Matrix Biology Plus, Molecular Biology Reports, Cancers, Immuno-Oncology Insights, Annals of Biomedical Engineering, Bioengineering and Translational Medicine, Acta Biomaterialia, Frontiers in Oncology, Current Opinions in Biomedical Engineering, Proceedings of the National Academy of Sciences, Advanced Science, Nature Communications, npj Biological Physics and Mechanics.

**Grant Referee**

- European Research Council
  - 2022 Advancing Grants proposals
  - 2023 Starting Grant proposals
- Florida Department of Health
  - 2022 Health Biomedical Research Programs
  - 2023 Health Biomedical Research Programs
  - 2024 Health Biomedical Research Programs
- University of Texas at San Antonio
  - 2025 Limited Submission Program, High-Impact/High-Risk Research Awards, Cancer Prevention and Research Institute
- University of Notre Dame
  - 2023 Harper Cancer Research Institute Cancer Cures Venture Grants
  - 2025 Provost's Postdoctoral Fellowship in Engineering Program
- Air Force Office of Scientific Research (AFOSR)
  - 2024 Broad Agency Announcement (BAA) proposals, Space Biosciences Division
- French National Cancer Institute (INCa)
  - 2024 Cancer Biology and Basic Sciences Programs
- National Institutes of Health
  - ZCA1 TCRB-V(01), Panel Dates: 05/29/24-05/30/24, NCI R01 Cancer Moonshot Scholars Diversity Program (CMSDP) special emphasis panel (SEP)
  - ZRG1 CTH-E(11), Panel Dates: 06/26/24-06/27/24, NIH Center for Scientific Review (CSR) Small Business: Radiation Therapy, Radiation Biology, and Nanoparticle Based Therapeutics SBIR/STTR special emphasis panel (SEP)
  - ZRG1 CDB-B(02), Panel Dates: 11/20/24-11/21/24, NIH CSR Cellular Signaling and Aging
  - ZRG1-CDPT-Q(55)S, Panel Dates: 07/09/25-07/10/25, NCI R21 SEP Clinical and Translational Exploratory and Developmental Studies
- National Science Foundation
  - P260613, Panel Date: 02/19/26, NSF/Biomechanics and Mechanobiology (BMMB) Engineering Research Initiation (ERI) program

## INTERNAL SERVICE AND SCIENTIFIC OUTREACH

10/2025 Faculty Advisor, Women in Engineering Graduate Writing Retreat, UND at Kylemore Abbey, Connemara, Ireland

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| 05/2025 | Panelist, Future Faculty Workshop, University of Notre Dame, Notre Dame, IN |
| 03/2025 | Faculty Advisor, Space Industry Tour for UND Aerospace and Mechanical Engineering Undergraduates, Meruelo Family Center for Career Development, various sites in Texas. Featured in Notre Dame News. |
| 12/2024 | Panelist, UND-Materials Research Society, University of Notre Dame, Notre Dame, IN |
| 02/2024- | Committee Member, Research Strategy Committee, Bioengineering and Life Sciences Initiative, University of Notre Dame, Notre Dame, IN |
| 09/2023- | Committee Member, Earth and Planetary Science (Space Exploration) Minor and Major Committee, University of Notre Dame, Notre Dame, IN |
| 09/2023- | Committee Member, Department Faculty Search Committee, Department of Aerospace and |
| 05/2024 | Mechanical Engineering, University of Notre Dame, Notre Dame, IN |
| 10/2023 | Faculty Advisor, Women in Engineering Graduate Writing Retreat, UND at Kylemore Abbey, Connemara, Ireland |
| 09/2023- | Speaker, Faculty Discernment Talks-in-Residence, University of Notre Dame, Notre Dame, IN |
| 09/2023 | Speaker, UND-Association for Women in Science, University of Notre Dame, Notre Dame, IN |
| 01/2023- | Committee Member, Department Chair Search Committee, Department of Aerospace and |
| 05/2023 | Mechanical Engineering, University of Notre Dame, Notre Dame, IN |
| 01/2023- | Elected Faculty Representative for UND, Rosalind Franklin Society's Council of Academic Institutions (annual position) University of Notre Dame, Notre Dame, IN |
| 10/2022 | Board Member, Faculty Advisory Board, Genomics and Bioinformatics Core Facility, University of Notre Dame, Notre Dame, IN |
| 08/2022- | Coordinator, New Faculty Socials, Provost's Office, University of Notre Dame, Notre Dame, IN |
| 05/2024 | |
| 03/2022 | Speaker, Teachers as Scholars Program, Harper Cancer Research Institute, University of Notre Dame, Notre Dame, IN |
| 08/2021- | Committee Member, 21-602 Imaging Microscope RFP, Notre Dame Integrated Imaging Facility, |
| 05/2022 | University of Notre Dame, Notre Dame, IN |

**Institute Memberships (at UND)**

Harper Cancer Research Institute, Berthiaume Institute for Precision Health, Lucy Family Institute for Data and Society, Notre Dame Nanoscience and Technology, Warren Center for Drug Discovery, Eck Institute for Global Health, Boler-Parseghian Center for Rare and Neglected Diseases.

**Advisory Boards Talks (at UND)**

Department of Aerospace and Mechanical Engineering-Internal Advisory Board: Spring 2022, 2023, 2024; College of Engineering-Engineering Advisory Council: Fall 2023; Harper Cancer Research Institute-Internal Advisory Board: Fall 2022; Graduate Studies and Research Advisory Committee: Fall 2023; College of Science-Advisory Council: Fall 2025.

**Committee Member for Graduate Students (at UND)**

Fatemeh Jafarabadi (QE 2022, CE 2024, Advisor: Dr. Maria Holland, AME); Sarah Nano (QE 2022, CE 2024, Advisor: Dr. Glen Niebur, AME); Nihat Aliyev (QE 2022, Advisor: Dr. Pinar Zorlutuna, AME); Johanna Olesk (QE 2022, MS Defense 2023, Advisor: Dr. Nosang Myung, CBE); SungHoon Rho (CE 2023, PhD defense 2024; Advisor: Dr. Thomas O'Sullivan, EE); Ellie Johandes (QE 2024, Advisor: Dr. Donny Hanjaya-Putra, AME); Tahir Irshad Ali Shah (QE 2022, MS Defense 2024, Advisor: Dr. Thomas O'Sullivan, EE); Sonu Kumar (CE 2022, PhD Defense 2024, Advisor: Dr. Hsieh-Chia Chang, CBE); Sanjoy Saha (CE 2024, Advisor: Dr. Donny

Hanjaya-Putra, AME); Hailey Lynch (QE 2025, Advisor: Dr. Jonathan Whitmer, AME), Xincheng Wang (CE 2025, Advisor: Dr. Maria Holland, AME), Benjamin Speybroeck (QE 2025, Role: Committee Chair; Advisor: Jeremiah Zartman, CBE), Dominique Gramm (QE 2025, Advisor: Dr. Donny-Hanjaya Putra, AME), Anna Wenninger (CE 2025, Advisor: Christopher Patzke, BIOS).