

Deepak Sathyan

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📍 Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX

Education

University of Maryland

Ph.D. in Physics

Thesis: Unifying Searches for New Physics with Precision Measurements of the W Boson Mass

Advisor: Dr. Kaustubh Agashe

College Park, MD

Aug 2018 – July 2024

Boston University

Bachelor of Arts in Physics, Summa Cum Laude with Honors

GPA: 3.9

Minor: Mathematics

Thesis: Muon ($g-2$): Searching for the Muon Electric Dipole Moment

Advisor: Dr. Robert Carey

Boston, MA

Aug 2014 – May 2018

Experience

Postdoctoral Research Associate

Mitchell Institute for Fundamental Physics and Astronomy

Texas A&M University

College Station, TX

Sept 2024 – Aug 2027

3 years

Selected Publications

Measurement of the Positive Muon Anomalous Magnetic Moment to 0.46 ppm

Muon $g-2$

arxiv.org/abs/2104.03281 (Phys. Rev. Lett.)

2021

New laboratory constraints on neutrinophilic mediators

P.S.B. Dev, D. Kim, D. Sathyan, K. Sinha, Y. Zhang

arxiv.org/abs/2407.12738 (Phys. Lett. B)

2025

LHC Signals for KK Graviton from an Extended Warped Extra Dimension

K. Agashe, M. Ekhterachian, D. Kim, D. Sathyan

arxiv.org/abs/2008.06480 (JHEP)

2020

Publications

Producing the GeV Galactic Center Excess via Cosmic Ray-Dark Matter Scattering

B. Dutta, D. Goswami, J. Kumar, M. Rai, D. Sathyan

arxiv.org/abs/2605.08010

May 2026

A Baryon and Lepton Number Violation Model Testable at the LHC

A. Bhoonah, F. Burk, D. Liu, T. Ou, D. Sathyan

arxiv.org/abs/2508.21064

Aug 2025

New Constraints on Neutrino-Dark Matter Interactions: A Comprehensive Analysis

P.S.B. Dev, D. Kim, D. Sathyan, K. Sinha, Y. Zhang

arxiv.org/abs/2507.01000

July 2025

New laboratory constraints on neutrinophilic mediators	2025
P.S.B. Dev, D. Kim, D. Sathyan, K. Sinha, Y. Zhang arxiv.org/abs/2407.12738 (Phys. Lett. B)	
'Unification' of BSM searches and SM measurements: the case of lepton+MET and m_W	2025
K. Agashe, S. Airen, R. Franceschini, D. Kim, A.V. Kotwal, L. Ricci, D. Sathyan arxiv.org/abs/2404.17574 (JHEP)	
A new purpose for the W-boson mass measurement: Searching for New Physics in lepton+MET	2024
K. Agashe, S. Airen, R. Franceschini, D. Kim, A.V. Kotwal, L. Ricci, D. Sathyan arxiv.org/abs/2310.13687 (Phys. Lett. B)	
Unifying Searches for New Physics with Precision Measurements of the W Boson Mass	2024
D. Sathyan drum.lib.umd.edu/items/f9b081c8-444a-4af2-b69e-c8156d11a2c9 (Ph.D. Thesis)	
Energy-peak based method to measure top quark mass via B-hadron decay lengths	2023
K. Agashe, S. Airen, R. Franceschini, J. Incandela, D. Kim, D. Sathyan arxiv.org/abs/2212.03929 (JHEP)	
TF07 Snowmass Report: Theory of Collider Phenomena	Oct 2022
Collaboration arxiv.org/abs/2210.02591	
Report of the Topical Group on Physics Beyond the Standard Model at Energy Frontier for Snowmass 2021	Sept 2022
Collaboration arxiv.org/abs/2209.13128	
Report of the Topical Group on Top quark physics and heavy flavor production for Snowmass 2021	Sept 2022
Collaboration arxiv.org/abs/2209.11267	
Snowmass2021 - White Paper, Implications of Energy Peak for Collider Phenomenology: Top Quark Mass Determination and Beyond	Apr 2022
K. Agashe, S. Airen, R. Franceschini, D. Kim, D. Sathyan arxiv.org/abs/2204.02928	
Snowmass2021 White Paper: Collider Physics Opportunities of Extended Warped Extra-Dimensional Models	Mar 2022
K. Agashe, J.H. Collins, P. Du, M. Ekhterachian, S. Hong, D. Kim, R.K. Mishra, D. Sathyan arxiv.org/abs/2203.13305	
The straw tracking detector for the Fermilab Muon g-2 Experiment	2022
Collaboration arxiv.org/abs/2111.02076 (JINST)	
Measurement of the Positive Muon Anomalous Magnetic Moment to 0.46 ppm	2021
Muon g-2 arxiv.org/abs/2104.03281 (Phys. Rev. Lett.)	

Beam dynamics corrections to the Run-1 measurement of the muon anomalous magnetic moment at Fermilab 2021
Muon g-2
arxiv.org/abs/2104.03240 (Phys. Rev. Accel. Beams)

LHC Signals for KK Graviton from an Extended Warped Extra Dimension 2020
K. Agashe, M. Ekhterachian, D. Kim, D. Sathyan
arxiv.org/abs/2008.06480 (JHEP)

Projects

BSM Searches via W Boson Mass Jan 2020 – July 2024
Developed a framework unifying beyond-the-Standard-Model searches with precision measurements of the W boson mass at the LHC.

Muon g-2 Experiment Aug 2018 – Jan 2022
Contributed to the straw tracking detector and beam dynamics corrections for the Fermilab Muon g-2 experiment, which measured the muon anomalous magnetic moment to 0.46 ppm.

Awards

Breakthrough Prize in Fundamental Physics Apr 2026
Muon g-2 Collaboration

Skills

High Energy Physics

Computing