Search for Dark Matter Particles Produced in Association with a Top Quark Pair at root s=13 TeV

By: Sirunyan, AM (Sirunyan, A. M.)[1]; Tumasyan, A (Tumasyan, A.)[1]; Adam, W (Adam, W.)[2]; Ambrogi, F (Ambrogi, F.)[2]; Asilar, E (Asilar, E.)[2]; Bergauer, T (Bergauer, T.)[2]; Brandstetter, J (Brandstetter, J.)[2]; Dragicevic, M (Dragicevic, M.)[2]; Ero, J (Eroe, J.)[2]; Del Valle, AE (Del Valle, A. Escalante)[2] ...More

Group Author(s): CMS Collaboration

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Abstract

A search is performed for dark matter particles produced in association with a top quark pair in proton-proton collisions at root s = 13 TeV. The data correspond to an integrated luminosity of 35.9 fb(-1) recorded by the CMS detector at the LHC. No significant excess over the standard model expectation is observed. The results are interpreted using simplified models of dark matter production via spin-0 mediators that couple to dark matter particles and to standard model quarks, providing constraints on the coupling strength between the mediator and the quarks. These are the most stringent collider limits to date for scalar mediators, and the most stringent for pseudoscalar mediators at low masses.

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Author Information

Reprint Address: Sirunyan, AM (reprint author)

Yerevan Phys Inst, Yerevan, Armenia.

Addresses:

[1] Yerevan Phys Inst, Yerevan, Armenia
[2] Inst Hochenergiephysik, Vienna, Austria
[3] Inst Nucl Problems, Minsk, BELARUS
[4] Univ Antwerp, Antwerp, Belgium
[5] Vrije Univ Brussel, Brussels, Belgium
[6] Univ Libre Bruxelles, Brussels, Belgium
[7] Univ Ghent, Ghent, Belgium
[8] Catholic Univ Louvain, Louvain, Belgium
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[13] Bulgarian Acad Sci, Inst Nucl Res & Nucl Energy, Sofia, Bulgaria
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[58] Indian Inst Technol Madras, Madras, Tamil Nadu, India
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[61] Tata Inst Fundamental Res B, Mumbai, Maharashtra, India
[62] Indian Inst Sci Educ Res IISER, Pune, Maharashtra, India
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[91] Univ Pisa, Pisa, Italy

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[150] Kharkov Inst Phys Technol, Natl Sci Ctr, Kharkov, Ukraine

[151] Univ Bristol, Bristol, Avon, England

[152] Ruthetford Appleton Lab, Didcot, Oxon, England

[153] Imperial Coll, London, England

[154] Brunel Univ, Uxbridge, Middx, England

[155] Baylor Univ, Waco, TX 76798 USA

[156] Catholic Univ Amer, Washington, DC 20064 USA

[157] Univ Alabama, Tuscaloosa, AL USA

[158] Boston Univ, Boston, MA 02215 USA

[159] Brown Univ, Providence, RI 02912 USA

[160] Univ Calif Davis, Davis, CA 95616 USA

[161] Univ Calif Los Angeles, Los Angeles, CA USA

[162] Univ Calif Riverside, Riverside, CA 92521 USA

[163] Univ Calif San Diego, La Jolla, CA 92093 USA

[164] Univ Calif Santa Barbara, Dept Phys, Santa Barbara, CA 93106 USA

[165] CALTECH, Pasadena, CA 91125 USA

[166] Carnegie Mellon Univ, Pittsburgh, PA 15213 USA

[167] Univ Colorado Boulder, Boulder, CO 80309 USA

[168] Cornell Univ, Ithaca, NY USA

[169] Fermilab Natl Accelerator Lab, Batavia, IL 60510 USA

[170] Univ Florida, Gainesville, FL USA

[171] Florida Int Univ, Miami, FL 33199 USA

[172] Florida State Univ, Tallahassee, FL 32306 USA

[173] Florida Inst Technol, Melbourne, FL 32901 USA

[174] Univ Illinois Chicago UIC, Chicago, IL USA

[175] Univ Iowa, Iowa City, IA USA

[176] Johns Hopkins Univ, Baltimore, MD USA

[177] Univ Kansas, Lawrence, KS 66045 USA

[178] Kansas State Univ, Manhattan, KS 66506 USA

[179] Lawrence Livermore Natl Lab, Livermore, CA USA

[180] Univ Maryland, College Pk, MD 20742 USA

[181] MIT, 77 Massachusetts Ave, Cambridge, MA 02139 USA

[182] Univ Minnesota, Minneapolis, MN USA

[183] Univ Mississippi, Oxford, MS USA

[184] Univ Nebraska, Lincoln, NE USA

[185] SUNY Buffalo, New York, NY USA

[186] Northeastern Univ, Boston, MA 02115 USA

[187] Northwestern Univ, Evanston, IL USA

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[189] Ohio State Univ, Columbus, OH 43210 USA

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[199] Texas Tech Univ, Lubbock, TX 79409 USA

[200] Vanderbilt Univ, 221 Kirkland Hall, Nashville, TN 37235 USA

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[207] Univ Fed Rio Grande do Sul, Porto Alegre, RS, Brazil

[208] Univ Libre Bruxelles, Brussels, Belgium

[209] Univ Chinese Acad Sci, Beijing, Peoples R China

[210] Inst Theoret & Expt Phys, Moscow, Russia

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